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MEETING OF THE SECTION OF DISEASES OF CHILDREN, JUNE 9, 1920.

THE USE OF WATER IN THE DISEASES OF CHILDHOOD.

BY FRITZ B. TALBOT, M.D., BOSTON, MASS.

WATER is the most important element in human nutrition and disease and yet probably the most neglected. The lack of interest in the use of water in disease is probably due to the fact that "familiarity breeds contempt," and much of the knowledge about its use is apparently so obvious that we assume it is known by everyone. It is my experience, however, that these obvious facts, which seem to be common knowledge, are often neglected or forgotten. It is wise, therefore, to summarize first the use and fate of water in the normal human body before we consider its use in disease.

The human body is composed largely of water; 66 to 71% of the body of a new-born infant is water and 58 to 65% of the body of an adult. The relative proportion of water in the body, therefore, diminishes with age. The natural food of the infant, human milk, is composed principally of water, approximately 87%, and in this respect as well as in all others, fulfills the requirements of the infant. When the amount of water ingested is compared with the amount excreted in the urine, the water output of the body apparently exceeds the water intake. This is due to the fact that the water formed during metabolism (the end product of which is carbon dioxide and water), is not taken into consideration. Considerable amounts of water are formed in this manner and can be estimated only by complicated chemical methods. The source of liquid in the body, therefore, is the ingested water and the water which results from katabolism.

Young infants usually take from 140 to 150 grams of water per kilogram (about $1\,^1/_3$ ounces per pound), while adults take about 35 grams of water per kilogram of body weight[1] (½ ounce per pound). The amount required per unit of body weight, therefore, diminishes with increasing age. Experience has also shown that the artificially fed infant usually requires more water than breast fed infant. The figures given above should be considered as the minimum figures. My experience has shown that healthy infants require one-half to one-third more total liquid, and older children approximately one-fourth more liquid than the figures above would indicate.

The excretion of water is through the kidneys, intestines, lungs and skin. In healthy

infants it has approximately the following distribution: Kidneys, 60%; skin and lungs, 33%; intestines, 6%; retained, 1%.

This may be modified considerably in disease. During health the amount of water lost through the lungs and skin depends in large part upon either the surrounding humidity and temperature, or the amount of muscular exercise or upon both. Excessive perspiration, which is not compensated by increased water drinking, may so diminish the amount of liquid in the body that the relative composition of the body fluids is changed. This may cause many untoward symptoms, such as are seen in heat strokes.

The purpose of water is to keep the body in a state of equilibrium in which the various elements necessary for life will be in solution, to carry the food from one part of the body to the other, and to carry out from the body the waste products of katabolism and other abnormal elements. That water is necessary to do this is shown by the fact that if urea is given by mouth, an increased secretion of urine results. This is also true of common salt.

In health the urine is a good index as to whether or not sufficient water is being ingested. Immediately after birth very little urine is secreted until the seventh day when approximately 210 c.c., or seven ounces, are passed in the 24 hours. This amount rapidly increases so that by the end of the first month the breast fed infant passes as much as eight or more ounces daily, and the bottle fed infant about 16 ounces in 24 hours. The artificially fed infant always passes more urine than does the naturally fed infant. At six months the amount of urine is twice as great as at the first month, while in the fourth year it is three times as great, and in the twelfth year six times as great as at the first month.[2] The specific gravity of the urine is a good indication as to whether or not a child is taking enough liquid in the diet. In children over six years of age the specific gravity should not be higher than 1.018 and under six correspondingly less.

Conditions due to too little water in the body arise at various times and are often puzzling to the physician. The earliest instance of this is found in the new-born infants and is described by Holt as "inanition fever." It is usually seen during the first five days of life and is characterized by a temperature of 101° to 106° F., for which no cause can be found. Daily weighings have shown that the infant continues to lose weight while the fever persists. This loss in weight of children with inanition fever is always greater than the loss of weight of normal new-born infants. Holt describes children with inanition fever as follows: "The symptoms presented by these infants were a hot, dry skin, marked restlessness, dry lips, and a disposition to suck vigorously anything within reach. With very high temperature there was considerable prostration and weakened pulse. In the less severe cases there were only crying and restlessness. The rapidity with which the symptoms disappeared when the children were wet-nursed or properly fed, was very striking" (Holt). "Inanition fever," or better "desiccation fever," is due to the fact that the new-born infant is not given sufficient water to replace that lost from the body before a sufficient supply of breast milk is available. The treatment consists in giving water freely to the infant until the body absorbs sufficient water and the temperature falls.

A second condition due to too little water in the food is seen in communities where artificially fed infants are given a *concentrated food* such as "Eiweissmilch" (protein milk), without the addition of water. This food may contain enough calories to supply all the needs of the infant, and yet he will not gain because he does not receive enough water either to supply the demands of the body or to carry away the waste products through the kidneys. The simple addition of one half to one pint of water to the daily dietary will result usually in a satisfactory and continuous gain in weight. It is, therefore, necessary to bear the water requirements of an infant in mind when a concentrated food is fed.

Summer Heat. Body heat is lost from the body by radiation and conduction, and at times by the evaporation of water from the skin. When the surrounding temperature of the air is cooler than that of the body the heat radiates rapidly from the body. When the temperature is nearly the same as that of the body, the surrounding air takes up less heat. The skin then perspires and the moisture formed evaporates, thus cooling off the surface of the body, the amount of evaporation depending upon the humidity of the surrounding air; the greater the humidity the less evaporation. For example, in adults there is six times as much water lost from the skin when the surrounding temperature is 98° than when it is

68° F., and we all know how difficult it is to keep cool on a "muggy" day when the humidity is high. Unless this loss of water is made up by extra intake of water during the hot weather, the body will become dried out. This is one of the principal predisposing factors for heat strokes. It also may be responsible for failure to gain in weight in the summer months. Symptoms will be precipitated when children exercise vigorously in hot weather and perspire very freely without drinking water. The importance of these fundamental principles are not fully appreciated in northern climates where the season of extreme heat is very short, but are appreciated in the South, where long experience has taught its lessons. Older children will, if they have an opportunity, drink the water necessary to compensate for the extra loss of water in hot weather, but infants cannot ask for water and consequently it should be offered to them whether they take it or not, three or four times a day, on hot days.

In cases of *summer diarrhea* it is surprising to measure the total amount of water lost in the feces when six or more liquid stools are passed in the day. They may contain as much as one quart of bulk, the greater part of which is liquid. If the diarrhea is complicated by vomiting, it is easy to see why the body becomes so rapidly dried out and the patient appears so critically ill. The most important factor in treating such a case is to introduce sufficient liquid into the body to bring the body fluids up to their normal dilution. Parents often say that the child refuses to take water, but I have never seen a case in which a child could not be induced to take the required amount of water in one way or another. I remember vividly one such case in which a trained nurse, on the third day of an infectious diarrhea, was able to get 91 ounces into a child by persistence and ingenuity. The clinical results were startling and the child changed in twenty-four hours from one whose recovery was doubtful to one whose recovery was certain. Although this is an extreme instance it is characteristic. In estimating how much liquid should be introduced into the body, the amount that is normally taken during health should be taken as a standard; to this should be added about 50% more to compensate for what will be lost in the stools.

Fever also causes an increased loss of liquid from the body. This loss, however, is more difficult to estimate because it is usually lost through the lungs. If with the fever there is also restlessness, the loss of water may be very great. If there is also diarrhea, the loss will be excessive, and it will be found that twice the normal fluid-intake will not be any too much to prevent the appearance of alarming symptoms.

In *pneumonia* the situation seems to be somewhat different because the distribution of water in the body apparently is abnormal. Although water may be retained in the body, it is bound to tissues which do not normally require it, and unless extra water is given, there will not be enough circulating liquid to maintain the normal equilibrium of the body. In argument for this is the fact that following the crisis, in a case of pneumonia, there is remarkable increase in the water elimination via the kidneys and skin. It is therefore very important that additional water be given in cases of pneumonia, both to make up for the fever and to supply the tissues with the amount of water that they need.

In *intestinal intoxication in infants, associated with acidosis,* there is impaired elimination of liquid from the kidney. This may be ascribed either to the loss of water in the stools in such great amounts that it is impossible for the infant to ingest sufficient fluid to replace that loss, or to the fact that the patient refuses to ingest fluid or vomits practically all that is taken. As a result the tissues become dehydrated. This may be cured by introducing enough water into the body.

Treatment.—The best treatment is, of course, prevention of dessication of the body. The methods of introducing water into the body depend upon the symptoms of the case under consideration. Even when there is no vomiting and during the early stages of febrile diseases, a record of the amount of liquid ingested should always be recorded and added up at the end of each twenty-four hours. In this way only is it possible to know exactly how much fluid the child is receiving. If this is taken into consideration early enough and the child is given the amount of liquid which would normally be ingested during health plus the estimated amount lost as a result of the disease, fewer untoward

symptoms will appear. A study of the records of the liquid ingested is often highly interesting and the information thus obtained is very important. Sometimes it is necessary to force water when the child is not receiving enough. This should be done when necessary in all instances except when it is done at the expense of the child's strength or when it causes vomiting.

The second method of introducing water is by the rectum. Success with this method depends very much upon the means employed. Very little success can be expected during diarrhea when there is excessive peristalsis, but it should always be tried. In other conditions without diarrhea, water may be introduced once in four hours very slowly, taking half an hour to introduce three to eight ounces, according to the age of the child, or it may be administered by the Murphy drip, four to five drops per minute, for periods of three hours. This should be alternated with rest periods of three hours in order that the rectum will not become irritated and peristalsis started up.

Finally water may be introduced subcutaneously or intravenously. In most instances subcutaneous injection of water is sufficient, but occasionally when very rapid results are essential it is necessary to introduce it intravenously or intraperitoneally. The water should be absolutely sterile and should be isotonic with the blood, that is, a normal saline solution. From three to sixteen ounces may be introduced at one time into desiccated children. It is surprising to see how quickly they react to this form of medication. When there is any desiccation of the body, the results are practically always quick, and like those of a very strong stimulant.

REFERENCES.

[1] Langstein and Meyer: Sauglingsernahrung und Sauglingstoffwechsel, Weisbaden, 1914, p. 40.
[2] Grundobin: Die Besonderheiten des Kindesalter, Berlin, 1912, pp. 363 and 383.

DISCUSSION.

DR. WILLIAM W. HOWELL, West Roxbury: It is always a pleasure to hear a subject which is as old as medicine discussed from a new and modern point of view. It is always a pleasure to hear that an old remedy is as good, as essential, as helpful, and from a scientific point of view even more indispensable than ever. I am heartily in sympathy with Dr. Talbot's subject and keenly alive to the importance of water in the treatment of disease. However, from a personal point of view I am hardly in sympathy with the way he presented it, because he has left me hardly anything to say.

It is surprising to me that American works on pediatrics treat water so lightly. They give the subject a few sentences or a page and leave the rest to your imagination, trusting to luck that some water may be given. I feel safe to say that many babies' coming into the Infants' Hospital with an infectious disease or for feeding, that do surprisingly well, do so by virtue of the fact that we omit all medication and force fluids. It is surprising how sick and toxic babies may be when they come in and within 24 hours look a great deal better. I make myself unpopular very frequently on my visit because I say to the house officer, "I think it would be a good deal better to stop all medication and force fluids." There was a case in point this morning, a case of pyelitis, that had been very sick for ten days with a high fever, appetite poor, taking very little fluid, not making any progress whatever; four days ago I told the house officer to omit the drug he was giving — potassium citrate — and force fluids. The baby's temperature was normal the next day. The baby is doing perfectly well, is taking all the food offered him, more fluid; his weight is coming up and his temperature has remained normal. That is a very common occurrence with us. That is, I believe that the condition which is described as inanition fever not only occurs in the first three or four days of life or the first week of life, but I think that we see a similar condition in older babies that have been overdrugged with things that are distasteful, and in consequence will not take fluids, and in babies that have been vomiting and are depleted and robbed of fluid. I believe that inside of 24 hours the temperature will drop and such babies begin to eat and look entirely different.

The importance of fluid, I think, cannot be overestimated. I disagree with Dr. Talbot in one or two points: and one is that a baby cannot take much fluid by rectum if there is a diarrhea. I remember a baby that had a bad case of acute indigestion with fermentation, all washed out with profuse diarrhea, that gained a pound and a half over night, and all that it was given was fluid by rectum, by seepage.

The importance of fluid was brought to my mind years ago when I was a house officer at the Children's Hospital. I don't know how much drugging they do there now, but we did a lot of it at that time, and we had all kinds of diuretics and all kinds of stimulants and everything else. We were having a violent discussion about the cases in the wards, and my senior, a very brilliant man who always heard what everybody else had to say and then had his say, said: "Well, with all due respect to you fellows, I can run that ward upstairs on a bottle of castor oil, a few morphine pills, a can

of milk and a barrel of water." And I really believe he could.

One of the graduate students asked me the other day when and how I should give water to an infant, and I answered both questions with one word, "always."

DR. FRITZ B. TALBOT: I am glad that Dr. Howell spoke of pyelitis, because I should have put that in. It is important to wash out these pus cells that accumulate in the pelvis of the kidney, because if you don't wash them out they block up and result in an increase in fever.

I feel that if this subject that I have presented will make all the men see that the nurses keep a record of the amount of water ingested during illness and will not merely look at the chart, that I have accomplished a great deal, because I know that if you will look at the record of water ingested, you will be perfectly astounded to find that a number of children who, you think, are getting enough, have been getting minimum amounts of water: that is the reason many of the children do not do well in some of these serious illnesses.

CAUSE AND PREVENTION OF OVERSTIMULATION OF THE MODERN AMERICAN CHILD.

BY ERIK ST. J. JOHNSON, M.D., NEW BEDFORD.

"PROTECT, watch over, discipline and guide, those who have not yet attained sufficient age and experience to distinguish what is expedient for their own greatest individual interests."

This maxim, which perhaps expresses the greatest desire of the vast majority of healthy parents in normal homes, instinctive in most of Nature's kingdoms, coincides in the "Human Kingdom," with the "survival of the fit," and as such has been and is being, aided in every possible way by the universal spread of scientific knowledge, and system, permitted and backed up by the law and order of civilization. Under such a regime, the civilized, law-abiding nations of the earth, despite a clear understanding that its inhabitable surface is limited, look for a constant yearly increase of population, and hence a gain in strength and prestige, through the rearing of healthy normal children. Every now and then, whether it is Nature's action and reaction, or the operating of the eternal laws described by Malthus, human beings of one country or another (history repeats itself, the authorities say), kick over the traces, and in their apparent thirst for gain or power, fancied grievances, or something entirely new, cause conditions of strife, discontent and economic unrest, which in every way interferes with and seriously checks the establishment and progress of normal families and home life.

Against such eras of destruction and upheaval, operate the forces of parental devotion, special medical knowledge, social service, federal, state and municipal aid, combined with charities, organized and individual. These forces are presumably trying hard to supplement each other and work together, far greater results as regards welfare of home and children being attained and made possible by such cooperation.

So effective have been these efforts for unity in England, that infant mortality was actually reduced during the years 1916, 1917, and 1918, the more strenuous years of the war, in that country, to a lower figure than during the immediately previous years of peace. It would appear to be a lack of realization of what is most expedient, or distortion of proportional values, which further interferes with and temporarily blocks the unity of forces aforesaid, and decreases their efficiency.

In our own country and state, the forces for promotion of children's welfare have accomplished magnificent and wonderful work. You are all more or less familiar with the widespread diffusion of special knowledge of children through channels clinical, religious, municipal, and social. The more of this kind of work there is done, the more there seems to appear to do, and the large sums of money necessary have flowed in most generously, through avenues of public and private appeal.

Now it would certainly seem that at present, in this country, there is opportunity to give every child a chance for well-balanced health, education, and satisfactory progress in its contest for the right to existence. But though the medical men are checking and preventing organic disease, though our associations, public and private, are constantly weeding out the unfit, and though schools for mind and body are better than they ever were, there arises a gigantic monster which, like the Pestilence, or any of Nature's former checks on population, seems tending to disrupt these wondrous efforts, and seriously block their progress in the maintenance of normal homes necessary for the welfare of normal children.

In the *Boston Herald* of March 28, 1920, editorial section, page one, there is an article giving official figures and reports of the central

police station. In commenting on the disappearance of 38,000 girls in the United States in one year's time, since March 1, 1919, of which number 323 are recorded in the city of Boston, the writer attempts to classify and get at the original fundamental causes. As one would naturally suspect, unsatisfactory homes and discontent therefrom are most prominent; but in trying to go a little further, and reasoning on the restless discontent in a country that is sufficiently prosperous to promote general happiness, three prominent headings strike one's eye:

1. Modern youth and childhood overstimulated. The modern girl and modern boy as well is over-stimulated from the outside.

2. Large proportion of blame placed on the "Movies" or motion pictures.

3. Need of a school for "Parenthood," modelled on one that exists in Belgium.

These statements are from reliable sources, and in a Boston paper, but many protests of a like nature are to be found in publications representing many of our principal cities and localities. Now, whether this condition of unrest and discontent was caused chiefly by the war, or increased prosperity and ambition, or by overstimulation from life in general, matters little. I believe it is generally agreed upon that the latter condition (overstimulation) is rampant among our children today, and being exceedingly difficult for most people to cope with, it is perhaps nullifying to a large extent the splendid work done during past and present time by promoters of children's health.

The evils of overstimulation of the human organism, from a physical point of view, even when the causes are entirely psychic, are too well known by the authorities on physiology and psychoneurology (being largely circulatory and nutritional) to take up your time with. Suffice it to say, that a distinctly temporary or acute disturbance in the normal balance of secretions of the thyroid, pituitary body, suprarenals and gonads, causing mild interference with the sensitive physiological functions of children, may actually today partake of the nature of a habit, on account of the continual presence of the exciting causes.

Now, everyone who has a real knowledge of children, and many who have not, have discoursed on the evils of the candy habit. That is a tangible concrete affair, while laboratories have made perfectly patent the ill effects of an overproportion of sugar in concentrated form as a continuous part of the diet of childhood and youth. Now it ought to be an easy matter to convince a parent who knows that excess of candy is deleterious to child health, excess of stimulation is quite as antagonistic, if not more so, because the children have more ways of receiving the latter through apparently normal channels than the former, rendering the habit easier to form and harder to break off than the "candy" habit. It is therefore my desire to interest our professional brethren, from the point of view of the specialist in both "pediatrics" and "neurology," in the fact that though the condition of overstimulation is apt to be complex, the causes are fairly clear and certainly easier for the average parent to comprehend than the reasons for chemistry of childhood metabolism or the micro-organisms which must be contested in preventing and overcoming organic infections. Consequently, why should not the causes of excess stimulation be taken up in more concrete ways, demonstrated, classified, and warned against, just as much as errors in nutrition, enlarged tonsils, and respiratory infections? Until a comparatively recent date, these evils of excess stimulation in childhood were manifested only among idle rich, so-called. Today they would appear to threaten a very large number of the constitutionally fit children of our population, which is indeed a serious matter. It is true that nature arms the normal parent or child most admirably, in selective instinct, as to what is good and what is bad. The difficulty regarding the quantity and quality of pleasureable excitement or mental stimulus a child, or children in general should have is selective proportion, in order to attain the moderate degree which is beneficial to health, and to avoid the excess which tends to destroy and break down. Along these lines I believe modern children need your help and need it badly.

Some of us have felt for a number of years that like the subject of instruction in sex hygiene, the teaching of proportional values of mental stimulation and excitement for growing children has been avoided, except in rare individual cases, and being rather complex in its nature, left generally to parents and circumstances. While free to admit that the subject is complex, it would appear to be intimately related, so far as preventive measures are concerned, to cultivation of self-discipline and a

contented attitude towards greater simplicity in life. Can not much be accomplished in urging the profession, special and general, to take up the causes in a systematic way, and endeavor to show at the same time the methods of elimination on the ground that such affairs are a real menace to present and future health in childhood and youth. Mr. Herbert Hoover and the Massachusetts State Commission on the high cost of living have at different times most earnestly recommended greater efforts to simplify life, in order to stabilize American economies as a matter of future self-preservation for us all. May not we, as authorities in whom parents place trust for the safety of their children, rub it in everywhere we go that an elimination of the causes of excessive stimulation of children would not only add much to success in promotion of their health in general, but also give a vitally important boost to the resumption of the normal workings of the laws of economics, so necessary to the production and maintenance of the safe and sane homes?

It is true that each of the aforesaid causes might in itself form the subject of a paper or discussion. My purpose is more to call attention to the fact of these evils, which are operative mainly through discrepancies in sense of proportion for youthful work and play. Like candy, most of the causes infer commercial profit on a large scale, and if correctly and intelligently used, are capable of affording much benefit. But also, like candy, experience has proved that where financial opportunity exists, the majority are apt to abuse, and it becomes a question whether it is not far easier to form the habit of none at all, than just the proper amount at the proper time.

Now, as regards the aforementioned factors or causes of excessive stimulus to the modern American child, these may be classed under six main headings:

a. First, the automobile; a modern marvel of mechanical skill, which has brought, and is today bringing, increased fresh air and opportunities for quick change of great benefit to children. Quite true; but what about the speed, the dust, the complex delicate machinery and the ever increasing cost? What of the engendered restless discontent or the unconscious strain of the undeveloped neuropsychic mechanism to absorb and digest, the rapidly moving train of interesting wonders the motor car necessarily brings up. It inculcates a desire not only for exciting changes at too quick intervals, but also for complex artificial rivalries, occupations, diversions and entertainments, creating dissatisfaction with the simpler and more health giving home pursuits, and in time actually eliminating these from the child's mental horizon.

As further evidence, observe the present trend of action among children as regards sailing, rowing, and motor boating. There is not nearly so much natural, purely healthful recreation when once the motor boats are dominant. But there is a great deal more tension and excitement. Children, with rarely endowed exceptions, no longer care to sail or row. Such things are too slow. They are no longer interested in the beauty of the water, the sunset, and the ways of the wind. Even the moonlight on a gently flowing tide, or river, has yielded its fascination to that of machinery, with its grease and noise. We are all for speed. What time did we make and what is the power of the engine, are the all absorbing points. One is forced into the idea that the whole expedition is a proving of mechanical efficiency for business or war, rather than a glimpse at healthful recreation.

Well, you would not prevent children from riding in their parents' automobiles? No, but it is the candy proposition over again, and a matter of proportion. Encourage the youngster to walk, or ride a bicycle, rather than desire to frequent motors, which are bad for the best Nature has to give us. Represent the motors as purely business necessities, with which the child's acquaintance should be as brief as possible until he reaches an age which enables him to hold a license. Surely such things are possible, and a much more natural and contented children's existence would result, especially for those whose people cannot afford motors, as they will not be constantly compared with children who appear to own them.

The second heading in listing of aforesaid causes considers:

b. Machine-made music and modern dancing. As an ardent lover of music, both vocal and instrumental, I must admit to having very much enjoyed such mechanical triumphs as the graphophones and auto playelles, electric and otherwise. I believe many people did, when these machines were first made convenient for

general use The eventual result, so far as children are concerned, seems most unfortunate. Instead of agreeable genuine music and rhythmic graceful dancing, the chief factors are speed and excitement, slightly checked on occasions by novelty or fashion. The mere ability to indulge in any sort of music and dancing, at any hour, seems to foster artificial tastes and supreme indifference to anything which fails to promote further excitement. The children are soon rendered too lazy to make any real effort at producing music themselves. Or if one individual has the talent or desire, it is promptly overcome, as the rest always prefer the ease and convenience of the quicker zest and infinite power of variation afforded by the perfection of mechanical reproduction.

The commercial aspect of these machines has, no doubt, helped to place music of wide range and variety within the reach of those who otherwise would have had no chance to hear it. But what, may I ask those of rational, evenly balanced temperament, is the ultimate and most natural "grand finale"? Is it not greater speed and more excitement in place of desire for or pleasurable knowledge of the music or dancing as an art, for social pleasure, or genuine benefit? The excess in quantity alone is enough to jar Longfellow's "Celestial Harmonies," as well as the psychic mechanism of childhood. One may not openly and utterly condemn musical machines, but children must be more restricted in their use and warned against excessive indulgence at any and all times. Otherwise before a child has had a chance to develop his physique he is in imminent danger of developing "nerves," which the fond parents are soon made aware of, after the damage is done.

c. Third cause, or group, includes motion pictures and theatres. These hold out many attractions, especially arranged for children, and if handled with care and judgment, may turn out wonderfully beneficial, from the educational and recreative point of view. Some of us recollect the tuneful music and essentially clean, witty lines of Gilbert and Sullivan's classics, and of the "1492" of the First Corps Cadets of Boston, as most delightful moments of childhood's regime, when we were allowed to go once or twice a year. Now, unfortunately, the commercial aspect dominates and informs us that features which appeal to intensive sensational and emotional excitement pay the most. Let us hope they will not continue to do so. Many people are apt to forget how difficult this same financial status was in the fight waged by our profession against "patent medicines" and the giant crackers and other dangerous explosives of previous anniversaries of our independence. Today it would seem to appear that this same commercial profit has greatly injured the nature of true sport in prize boxing and professional base ball, the amounts and figures of the money involved being the real excitement. It is not at all strange, in considering these necessary results, with regard to our coming generations, that efforts are now being made to establish certain rules and regulations for motion pictures. As in previous cases, the community as a whole, advised and backed by the medical profession, will endeavor to help parents protect their children from the dangers of excessive excitement.

d. Fourth cause, telephone. Another most necessary and mechanically delicate adjunct to modern life is the telephone. Originally intended as a business convenience and time saver, it has become a universal dependence. Like the other complex machines, its excessive use tremendously increases the opportunities among children for prolonged continued action and stimulative excitement. What may be termed "telephone abuse," or improper, unnecessary use of the instrument, also adds no small amount to the strain and tension of existence. So far as a child's health is concerned, this factor could be adjusted by correct intelligent training when once the importance of the subject as a factor was called attention to; but if not, it is probable that elimination for a period would be the most effective way.

In this connection may I relate the recent experience of some most excellent families who for some years have taken their children, during the summer season, to Edgartown, Martha's Vineyard, and places along the south side of the Cape. These people have ample means to afford a telephone, but they tell me, once accustomed to living without one, the children do not seem to mind, while the quiet repose and simplicity thus induced renders the home life far more natural and as it should be. The value of such a normal point of view with regard to the children's health, strength and resistance can hardly be overestimated. A happy life, with comparatively few complications and worries, has been the result of recognition of

factors producing over stimulation in the young and the possibility of prevention of the same.

This brings me to the last heading, expressed by,

e. Fifth cause of group, which takes up "Too early or excessive school competition in studies, athletics and social life." Having learned the priceless value of a name and reputation in the line of success, many of our modern schools, both public and private, are naturally anxious to outdistance their rivals in all departments. In this way the superiority of the school and how closely it can imitate a university or college, would appear to entirely overshadow the basic principles that rugged constitution or what might be termed primary health and strength, so essential before reaching the actual "front," are never built up or fostered in the feverish atmosphere of a too complex, overstrained or hurriedly advanced quota of knowledge.

This business of mere children straining every nerve and being so excited or thrilled over exaggerated desire to keep a certain standing in the class, or win over a certain rival in the athletic or social field, must eventually have but one result, as every fair minded medical man knows. The system of automatic, interdependent controls of the functions of the "nervous system," established by the ductless glands, falls into a vicious circle somewhat akin to that of "autointoxication" in the digestive system. One notices more and more that in the private schools boys and girls are being removed and advised to drop back a year to regain their "equilibrium," not on account of any other reason than lack of "vitality." Furthermore, we too frequently hear the complaint, "Why is my child so delicate? Why do children seem to lack the vitality which the boys and girls used to have?" My good friends, they have this vitality, and even more, but it is unfortunately being used up by the constant temptations to burn up nervous energy with which they are surrounded on every side. While it is perfectly true that some modern methods are protecting and conserving the nerve vitality of childhood more than ever before, other modern methods are virtually obliging the children to use up this storage energy a great deal faster than they can produce it with their overstimulated, complex little organisms.

A distinguished author, the late Washington Irving, in a favorite classic, clearly demonstrates this condition and later the deplorable results of its misapprehension. The text reads in this manner: "I could be wrought upon to a wonderful degree of anguish or delight. Everything affected me violently and as I grew older the feelings remained equally acute, being too easily transported into paroxysms of pleasure or rage. It was the amusement of my relations and the domestics to play upon this apparently irritable temperament. I was moved to tears, tickled to laughter, provoked to veritable fury, for the entertainment of the company, who were ever amused by such a tempest of mighty passion in a pigmy frame. They little thought, and perhaps little heeded, the dangerous sensibilities they were fostering, and thus I became a little creature of passion before reason was developed. Soon I was disliked by my teachers for the very lessons they had taught me."

The unfortunate subject of this latter discourse grew up to commit a murder, which he vainly regrets, offering as a cause which might have been understood and remedied, the fact that he had always lived in an overwrought atmosphere. His father, though of noble rank, was sadly ostentatious beyond his means, and therefore continually straitened in his pecuniary circumstances. Authorities inform us there are quite a few people in America today who are doing this sort of thing. Such a case is certainly a warning against the fallacy of children becoming "little brothers or sisters of the rich," so-called, or being raised in an atmosphere of "false prosperity." These things certainly favor all the causes of excessive stimulation, if not constituting an actual causal group in themselves.

That children need normal natural stimuli is well known and widely acknowledged. The *Eugenics Review* for April wisely reflects, "Every child is a motor organism surging to move and do things. It is eager to translate thought into action to relieve emotion by motion. Beside motor capacities, there come all too soon the senses, the feelings, the imagination, the possibilities for control and initiative. In addition to fundamentals like food and air, the developing as well as growing organism require a succession of liberating stimuli," These "liberating stimuli," however, should be as nearly natural as possible and not unduly

continued or prolonged. Originally I take it, they were direct results of a closer contact with the scenes and forces of Nature and therefore controlled by Nature's checks. They were the sort of stimuli which cultivated self-discipline and fostered conservation of power, rendered experience fruitful and engendered repose during periods of inaction. One can hardly apply these attributes to the distinctly up to date "liberating stimuli" of youth and childhood. The main purpose of this paper is to indicate that the quantity and quality of such stimuli should be definitely classified, known of, and warned of, in their relations to children's health, as successfully as have been the proteids, carbohydrates, and fats, in relation to matters of diet and nutrition.

My eminent and reverend friend, Howard N. Brown, of King's Chapel, Boston, in one of his recent sermons stated that people are becoming so taken up with big problems of a world-wide nature they are wilfully neglecting to take sufficient interest to do well their smaller work as individuals. I take it the "woman's rights" movement, from which some of us expected great things, does not in any way appear to be increasing the scientific efficiency and labor-saving methods in the smaller or larger normal household. Those poor little primary affairs of economic and wholesome food well cooked, washing and laundry work, efficiently and reasonably done, amusements essentially non-extravagant and homelike in character, all these, on which rest the "king pins and bolts" of all the larger structures and accomplishments of society in all nations, would be made to appear as mere drudgeries, narrowing and distasteful to the modern point of view. Possibly the routine, every-day quality of such occupations has taken away the realization on the part of many that these primary every-day affairs form the bulwarks of healthy children in natural homes and, as Dr. Holmes once remarked, like a good pair of mammary glands, cannot be replaced or made up for by any amount of science and mechanics.

During the latter period of the recent war, every one admits, the Americans showed plenty of courage, abounding nerve, and ability to fight well. But the number of purely nervous breakdowns, considering the short time we were in action, has been remarked with some surprise by the statisticians. It may have been the unprecedented speed with which we were obliged to prepare; but it also may have been an indication of personalities having previously lived in association with speed, tension and excessive excitement, with a consequent habitual craving for the same. If this be true, what of our future generations? Are they no more to be endowed with solid, enduring, efficient nerve qualities like those of the supreme commander of the allied main front? Marshal Foch of the French Republic, on being asked what was the greatest "thrill" he ever felt, replied that he did not know what "thrills" were and had no time for them. Such leaders are not built up from overstimulated childhood, entertained by "ouija boards," and partial knowledge of their own subconscious selves, which affairs cannot be too strongly condemned.

SUMMARY.

The automobile, the motor boat, the graphophones, pianolas and cinematographs, together with wrongly proportioned extravagance in ambition and money, in schools and in homes, are all, in certain ways, seriously harmful to the existence and development of normal children. Chiefly so in that unless used with more than average care and forethought, they render children dissatisfied with normal home life. There, and there only, are laid the true foundations for natural strength and lasting qualities in mind and body. Though economic checks, such as the "high cost of living," and future shortage of gasolene, are bound to operate before long in the line of general stabilization, my present plea is that medical men should use every opportunity to warn present-day parents of the causes and evil, far-reaching results of overstimulation of children outside the home. Furthermore, that a less hurried, less lively, more simple existence, like that of some older nations, would appear to be what our children need most in order to build up staying, lasting qualities for further "international competition."

Take, for the sake of example, the lives, routine habits and customs of the younger children of the Scotch, English, Scandinavians, Danes, and Belgians. With our own greatly advanced scientific guides along the lines of physiology, pathology, nutrition, and hygiene, we should in the future render our American children as well qualified to fight for their existence as those of any nation or nations on earth.

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DISCUSSION.

L. E. EMERSON, PH.D., Cambridge: It is to me a great honor to have been asked to open the discussion on Dr. Johnson's paper, and I am very glad that Dr. Morse has corrected the mistake of the printer who inadvertently gave me an even greater honor with too little effort on my part. I am not an M.D., as he explained; I am only a doctor of psychology.

From a psychological point of view everything that Dr. Johnson has said is absolutely true, and I could not possibly add anything in the way of material or presentation except possibly in one respect, which will be to make it a little more schematic perhaps and to transform it into psychological terms. If we look at the child as a functioning organism in a group of organisms, that is, in society,—the child is stimulated and then reacts; overstimulation jams, to use a wireless telegraphy term, and the child is thrown into a state of excitement that may manifest itself in any form characteristic of that particular child.

Now it has been discovered recently that there is a psychological phenomenon previously suspected but not before well established, which has now received the term "repression." Under the circumstances of jamming, if the child or if anybody else is unable to transform the excitement that he receives, that excitement is repressed. Under those circumstances the repressed excitement takes up, more or less, an existence of its own in what for practical purposes of naming has obtained the name "complex." That term "complex" merely means something that is dynamic and is trying to get itself expressed in some form. Under those circumstances the organism, the child or the individual manifests symptoms. Now this affects the child in two ways,—either it prevents the child developing normally or it breaks down a development which has not become sufficiently well established to stand that strain. As an illustration of how it prevents a child developing, I may tell very schematically the case of a young girl whose father was one of the most brilliant public men probably that this country has ever produced, and under the stimulation of her father's brilliancy and her own home and public life, she attempted a similar brilliant attitude in school, more brilliant than true, which she characterized as her 8-year-old crime. It was simply that she falsified an examination paper and afterwards felt so badly about it that she was unable to talk to people because she thought they knew about it; she was unable to meet her parents and her friends because she thought they knew about it; she was unable to read a newspaper because she thought it was in the newspapers. She started in on a course that came very close to approaching dementia praecox for various reasons; one was the overstimulation of the parental activity, and the other was that the activity did not have an adequate form of expression.

Another instance of that sort of thing is illustrated by a child who in early age is overstimulated and breaks down from inadequate ability to meet the demands that the public puts on her. Such an instance was that of a young girl who, owing to the fact that her father was a drinking man, had to go to work at the age of 15 and was unable to do the work that was required of her. In other words, she was unable to transform the stimulations into forms, she was unable to transform the demands of the mechanism into which she was thrown into serviceable activity, and she started in with a St. Vitus dance sort of reaction, ending up in ties and finally into hysterical symptoms of various characters.

Now all this is schematized in the simple idea that emotions may be disassociated from their proper ideas and therefore find no possibility of expression because a normal emotion has got to be expressed through a normal idea normally associated with that emotion. If that emotion is not properly expressed or with the proper idea, it is disassociated and it becomes the complex that I have spoken of, and then it must manifest itself in some other form, which may be anything from a mild stammering, a slight hesitation in speech, a feeling of general neurasthenic unhappiness, or down to dementia praecox in one line, or to certain forms of reactions that have all the appearances of epilepsy in another line, or on another side if antisocial reactions are sufficiently strong, into all degrees of criminal reactions. From that point of view the inadequately expressed excitement may be criminal in one line or illness in the other.

The only thing that I wish to say in addition is again to express my sense of the honor you have done me in asking me to open the discussion on Dr. Johnson's paper and simply to say that psychologically and scientifically, everything he has said is absolutely true.

DR. ERIK ST. J. JOHNSON: I was glad to have this paper brought down to more definite scientific terms, for which I have to thank the gentleman who opened the discussion. It is from the psychoneurological point of view a complex subject, but is, practically speaking, a simple one, in that it applies to the every-day home life of all normal children. Some of us have felt for a number of years

that, like the subject of instruction in sex hygiene, the teaching of proportional values of mental stimulation and excitement for growing children has been avoided, except in rare individual cases, and (being rather complex in its nature) has been generally left to parents and circumstances. While free to admit that the subject is complex, it would appear to be intimately related, so far as preventive measures are concerned, to greater cultivation of self-discipline and a contented attitude towards greater simplicity in life. It sometimes seems as if the civilization of our present day had overreached itself. We must today, therefore, defend children against the alarming tendency (in this country at least) of hypertension and its eventual deleterious organic results, by urging a cultivation of a less strenuous, more simplified, more natural mental and physical existence for our children. Can not much be accomplished in urging the profession, special and general, to take up the causes in a systematic way and endeavor to show at the same time the methods and possibilities of elimination on the ground that such excess is proving a real menace to present and future health in childhood and youth?

THE SIGNIFICANCE OF MENINGEAL SYMPTOMS.

BY A. C. EASTMAN, M.D., SPRINGFIELD, MASS.

THE unstable condition of a child's nervous system is the cause of many mistakes in diagnosis, and should make us very careful lest we place too much or too little emphasis upon the symptoms arising from a disturbed nervous system. Careful consideration of all data obtained by physical and laboratory examinations is necessary before we can safely pass judgment upon the significance of such symptoms. It is by no means always easy, even with such data at hand, to definitely distinguish between a meningism and meningitis or between the various forms of meningitis.

Most of the symptoms supposed to be characteristic of meningitis have also been found present in a number of other diseases. Convulsions, headache, stupor, vomiting, and high temperature may be present at the onset of many acute infections. The more definite signs of meningitis, such as rigidity of the neck, change in reflexes, Kernig's sign, Babinski's reflex, Brudzinski's neck sign, ankle clonus, and opisthotonos, have each and all, at one time or another, been found present in other acute infections besides meningitis. Especially in pneumonia, typhoid, influenza, and the exanthems, are we liable to find some of these signs present. Pneumonia, influenza and typhoid are not only peculiarly subject to meningismus in their early stages, but are also liable to develop a secondary meningitis later in the course of the disease. The poorly nourished, marasmic infant has frequently been diagnosed as a case of meningitis because of the pseudo-opisthotonos which is oftentimes present. The more we recognize the possibility of such signs occurring in various infectious diseases, the more difficult becomes the problem of a proper interpretation of their symptoms.

Whenever meningeal symptoms are present at the onset or during the early stages of a disease which we can positively diagnose as some infection other than a meningitis, we may be justified in declaring such symptoms due to a meningism, but whenever there is doubt as to the diagnosis, or the symptoms develop later in the disease, we must seriously consider meningitis.

From our present knowledge of immunity we know that most of the immunity of adult life is acquired during childhood, which means that the infant and young child is more susceptible to many of the acute infections, as well as being more frequently exposed to them. The various portals of entry are not yet well guarded, and the nasopharyngeal system and the blood stream give bacteria and their toxins easy access to the various parts of the body, including the central nervous system. Thus we find meningeal symptoms much more common in early childhood than in any later period of life.

It is beginning to be considered probable that the convulsions at the onset of an infection, as well as the early meningeal symptoms, are caused in many cases by actual changes in the quantity and quality of the cerebrospinal fluid. It is possible that these changes are brought about by the sudden increase in blood supply to the chorioid plexus at the onset of fever, causing a rapid increase in quantity of cerebrospinal fluid with its resulting increased pressure. The symptoms developing from this increased pressure will begin to subside as soon as the circulation has a chance to become regulated to the presence of high temperature, provided no bacterial invasion of the meningeal membranes has taken place.

In a series of cases recently published by Herrick and Dannenburg,[1] it was found that of a large number of infections, not including the

various forms of meningitis, but having meningeal symptoms, 30% showed increased pressure of the cerebrospinal fluid, together with increased cell count and globulin content. To further quote their conclusions,—"These diseases are lobar and bronchial pneumonia, influenza, the exanthems, scarlet fever, measles, variola; herpes zoster, parotitis, typhoid fever, septic arthritis, pleurisy, migraine, reaction to typhoid inoculation, and others. The cerebrospinal fluid shows variation from normal in about one-third of the cases studied. Most, but by no means all, of the patients with a subarachnoid reaction have clinical meningismus. On the other hand, many examples of meningismus are without pronounced changes in the cerebrospinal fluid. The greatest caution should be used in making a diagnosis of meningitis or poliomyelitis from fever, meningismus, and the changes in the cerebrospinal fluid mentioned. Cases with less than one hundred cells should be viewed with skepticism, unless clinical, epidemiological, or other laboratory evidence is decisive."

Levinson[2] found that in one hundred cases of meningismus all showed an increase of fluid with increased pressure, but only fifteen showed an increase of cells and globulin content. None of these cases showed any physico-chemical changes. Such conclusions as these, although they serve to explain many of the phenomena grouped under meningismus but associated with acute infections, at the same time make it all the more difficult for us to make a diagnosis from the cytological findings.

Although the meninges during childhood are more susceptible to infection than in adult life, yet even in childhood the protective power of the meningeal membranes against bacterial invasion is greater than that of other membranes of the body, and hence most infections of the meninges are secondary to infections somewhere else. Certain organisms have a special tendency to attack the meninges early. These organisms are the meningococcus, the poliomyelitis virus, and oftentimes the pneumococcus. In the first two especially, the invasion of other tissues is temporary and chiefly a portal of entry for the organisms which are then rapidly carried to the meninges. The streptococci and staphylococci practically always invade the meninges by direct extension from some local focus as the middle ear, mastoid, or cerebral abscess. The tubercle bacillus invariably is carried to the meninges from some primary focus in another part of the body, although the first symptom of tubercular infection may be the onset of a meningitis, appearing clinically as a primary disease.

Whenever we are in doubt as to our diagnosis, lumbar puncture is the only means of solving the problem. Since lumbar puncture was first introduced, we have been gradually led to believe that the cytological examination easily decided the diagnosis, that a meningism might, and often did, show an increased pressure, but the cell count was always low and there was no globulin reaction. The more the fluid has been studied, however, the more we find discrepancies in these findings. The fluid may show a comparatively high cell count with globulin reaction and still the child improve clinically, the meningeal symptoms disappear, and the original infection run its normal course. Or the fluid may show no reaction and have a low cell count, but the symptoms persist, and later a typical meningitis develop with its characteristic cerebrospinal fluid.

Also, in cases of true meningitis, we find wide variations from our former knowledge of the findings. Epidemic cerebrospinal meningitis may show a comparatively clear fluid and make us think we have a tubercular form of meningitis until we find the organisms present in the cells. Also the tubercular fluid may not differ at all from that of poliomyelitis in its fundamental properties, the clinical course of the disease being the only way to distinguish the two unless the tubercle bacillus has been discovered in the fluid. Fortunately, the types of meningitis which are apt to develop early and confuse our diagnosis with some other common infection are the types which usually show positive bacteriological findings in the spinal fluid, and a lumbar puncture becomes of definite assistance in these cases, even when it proves to be a meningism with high cell count and globulin reaction but negative bacteriological findings.

Because of the difficulty in finding the tubercle bacillus, our chief trouble centers around the diagnosis of tubercular meningitis as opposed to poliomyelitis, encephalitis, or a meningism secondary to some acute infection with a mild or moderate onset. In these cases, repeated punctures with a careful searching for the tubercle bacillus, together with the clinical progress of the infection, will sooner or later

clear up the diagnosis. Such repeated lumbar punctures can safely be done once a day until we have secured sufficient evidence to make the diagnosis. It is surprising, oftentimes, to see the rapidity with which the findings in the cerebrospinal fluid will change and clear up what was apparently an obscure condition. As long as there is any doubt as to the diagnosis, we must never be satisfied with the results of a single lumbar puncture. A typical case to illustrate this point is the following:

E. M., 4 years, admitted to Springfield Hospital April 15, 1920. F. H.—Paternal grandmother died from tuberculosis. History otherwise negative. P. H.—Always well except pertussis three years ago. P. I.—For past month complained a great deal of "pain in stomach" after eating. Pain relieved after bowel movement. No nausea or vomiting. During past week has lost weight; has been very peevish and wished to be held. A question of some discharge from left ear. P. E.—Well developed and nourished. Rather drowsy. Cries if handled or moved. Tender over left mastoid. Slight rigidity of neck. No definite change in reflexes. Throat, chest, and abdomen negative. Seen by aurist and left ear incised. Temperature, 102; pulse, 140. For two days her condition remained about the same and the symptoms pointed toward a meningism secondary to the ear. Lumbar puncture gave fluid with no increased pressure; cell count, 40; globulin, negative; no sediment, and fluid sterile. Leucocyte count upon admission, 10,000. Two days later, 17,000. A second lumbar puncture the next day showed no change in fluid except a differential count gave 85% polymorphonuclears. Five days after entrance her condition became worse and she then showed a typical clinical picture of tubercular meningitis with characteristic reflexes. Two incisions of left ear drum had produced no results although there appeared to be evidence of some trouble there. A third lumbar puncture gave increased quantity with increased pressure. Fluid clear. Cell count, 130; globulin, positive. Differential count showed lymphocytosis. Typical sediment of tubercular meningitis. During the next two days the child grew rapidly worse and died. Autopsy showed many small miliary tubercles on surface of brain and at base, a slight exudate at base. Left internal ear showed chronic necrosis.

The cases of tubercular meningitis with sudden, severe onset usually develop much more rapidly and give other signs as paralyses, ocular symptoms, neck sign, stupor, etc., which altogether help to differentiate the condition from a meningism, but which might still be confused with poliomyelitis or encephalitis. The further clinical progress of the case is the only means of differentiation between these diseases, as the cerebrospinal fluid in such cases of tubercular meningitis may very often show no characteristic properties before death takes place.

Gingold[3] has described a reflex strabismus as an early diagnostic sign of basilar meningitis. His description of the sign is as follows: "By flexing the head on the chest, either a bilateral or unilateral internal strabismus develops, which will last as long as the head is kept in flexed position, and disappears as soon as the head is relaxed. In many cases the strabismus is accompanied by a retraction of the upper eyelids. In some cases I have also noticed a contraction of the pupils. This reflex strabismus was present in the early stage of almost every case that came under my observation in the past seven years. In the late or paralytic stage, flexion of the head failed to produce a strabismus. The reflex strabismus, above described, proved, in my experience, to be such a reliable symptom that I have often made a diagnosis of basilar meningitis days before any other meningeal symptoms appeared."

The various chemical and physicochemical changes in the cerebrospinal fluid serve further to differentiate the different types of meningitis, but are chiefly possible to obtain only in the large laboratories. For practical purposes we must rely upon the presence of increased fluid, increased cell count, differential cell count, globulin reaction, presence of sediment, and bacteriological examination to make a diagnosis

CONCLUSIONS.

Meningeal symptoms are frequently present in many of the infections of childhood and may represent either a meningism or a meningitis.

Unless definitely positive of some diagnosis besides meningitis, the only means of determining their significance is by lumbar puncture, which, in many cases, requires several repetitions before we can make a definite diagnosis.

Like other laboratory examinations, the findings in the cerebrospinal fluid must be consid-

ered in conjunction with the clinical progress of the disease.

In the final analysis we must depend upon the bacteriological examination to furnish a positive diagnosis.

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DISCUSSION.

DR. J. J. THOMAS, Boston: Dr. Eastman's paper is one which covers, I think, the points very fully and very completely. There is not much that I can add to it, I am sorry to say. Perhaps there may be one or two things that may help to bring out the idea a little more definitely. At least I may be able to add something in that respect to what he has said. We probably have to distinguish in these cases which show clinical signs of meningitis between different groups of cases: first, those of meningitis where we have an actual infection of the meninges by some form of bacterium. These are familiar to most of you, and the one which is most difficult to diagnose, as you all know, is the tuberculous form, because the tuberculous is the one in which it is most difficult to find the germ when examination is made of the cerebrospinal fluid. In addition in regard to the infectious forms, that is, the true meningitis, I may add just a word, and that is that very frequently on doing lumbar puncture you may miss the organisms on examination of the fluid. On the first time that the fluid is withdrawn, I have frequently seen the fluid perfectly clear and on the second or third drawing the organism has been found, and that is true not only of tuberculous meningitis, for which you may have to examine the fluid many times before the germ is found, but it is also true of the epidemic form due to the meningococcus. Probably this difficulty would be less frequent if we did ventricular puncture more often or punctures of the cisterna magna at the base of the skull. That strikes us all as a dangerous procedure, yet if carried out with precautions, is a practical one, where the needle is introduced between the base of the skull and the first cervical vertebra and the fluid withdrawn. In tuberculous meningitis the meninges at the base of the brain are the parts first involved, and it may be some time before the germs show in the fluid obtained from the lumbar part of the spinal cord. So that, as was rightly said, repeated lumbar puncture is very important, or I may say in addition to that, the puncture of the ventricles may lead to a diagnosis earlier, or show that we have to deal with a germ.

You are familiar with the fact that the character of the cells obtained in the spinal fluid varies. In the epidemic form we get an excess of polymorphonuclear leucocytes, and in the tuberculous form we find the lymphocytes predominating; but those are not absolute, and we find variations. Next we ought to speak of the cases that give meningeal signs which are due to infection of the brain. Among these are the early encephalitis cases which Dr. Eastman has spoken of, and I should add to that the cases of poliomyelitis in which there is a meningismus. In these cases we have some virus which is in the nervous tissues of the spinal cord and occasionally of the medulla, and in the epidemic forms in the brain itself. And then we have the ordinary encephalitis where the virus which causes the disease is found in the cerebrum, and the reaction is not due to the actual infection but is more in the nature of a meningismus. Do not overlook the cases of encephalitis of the epidemic form, which is rare, but more common than we thought heretofore. Here the cells may be increased just as they are in other forms of encephalitis, but we find no germs.

Now, as for true meningismus, or the serous meningitis of Quincke and other writers, I think we should limit the term to the reactions where the sign is due to toxic substances. I have seen it in various acute infections, and in malaria, where we found the plasmodium in the blood, and the child had a convulsion every second day. There is a reaction of the meninges so that various poisons will give you these irritative phenomena, and while we have some reaction shown in the spinal fluid, it is not so intense as in true inflammation, and the germs are absent. I think among all signs the clinical symptoms must not be neglected and among these the most valuable is the variability of the symptoms.

DR. A. C. EASTMAN: I have very little little more to say, except perhaps to emphasize the importance of repeated punctures, especially in connection with the early meningeal symptoms, that is the symptoms coming early in the disease in the line of meningismus. The tendency is always to wait until you feel sure that you have a meningitis and then do a lumbar puncture; but I think if we are at all uncertain we ought to go ahead and do a lumbar puncture early, and if we don't get assistance in the first puncture we can repeat. Also in these cases of meningismus we do good by relieving symptoms. In cases of pneumonia, typhoid and similar diseases, frequently a lumbar puncture by withdrawing a certain amount of fluid, will reduce the symptoms and make the child more comfortable.

PARENTAL RESPONSIBILITY.

BY HENRY I. BOWDITCH, M.D., BOSTON.

WE are beginning to value life more and more these days. We, the human part of it, possessed of body and mind, are given our wonderful bodies to look after and bring up; as well as our minds, possessed of freedom of will, to educate. This physical and mental responsibility lies largely at the door of our parents. As a recompense they will get, through development and maintenance of health, all important happiness.

During the early years, parents, by nature, are the guardians of their children. A mother wishes her child to weigh the average as well as be normal. They are inclined to leave things to nature to decide for them, not using their minds, going along carefree as much as they can; only being awakened when some carelessness leads their children into disease, and when awakened, to find them handicapped physically or mentally.

Science has shown and still shows us how we can prevent much of our morbidity and lower the mortality. Prevention is the slogan which stirs us. This science we doctors have produced and are using, but only too inefficiently, even by us. We must awaken to our responsibility of directing our families and get them to realize their natural parental responsibility.

So far the physical field has been only surface scratched, and now the mental must take its turn. A normal mental development must be secured and its pitfalls and dangers well understood and guarded against.

But what are the responsibilities?

First, mature mankind must look to their stock and, naturally, rationally look at eugenics (the forbears of their children) with sanity. We must try to educate the voter in his use of his privilege of suffrage to affect public opinion or legislation along this line. We must pay more attention to our own race in producing normal individuals.

Second, with normal, healthy adults, it is fair to think seriously of the size of the family. We must play fair with the mother as to number of pregnancies, work before and after pregnancy, and also see that the father realizes the length of convalescence, physical and mental, necessary ere he asks his wife to undergo another pregnancy.

Third, children. A new life,—in a child such a great pride to parents,—is given us. Here it is we men are apt to make our first big error; we leave it too much to the mother. She needs support and encouragement which we frequently omit. As the body and mind develop, let us study with the mother its growth, give the first steps of discipline and character formation, and watch carefully for points of danger. These primary beginnings are all important. Every animal in puppyhood must be watched, directed, controlled and guided. The maternal heart naturally wants to "nurse" her offspring. It is up to us to aid and everywhere encourage her. As time goes on, her love will try to watch and protect her offspring from falls, both physical and mental; but how much better she will do it when her husband understands her,—for always at home, constantly at a nervous tension in watching for the wrong, it is no easy thing to do a mother's job; therefore we must support our mothers and educate our fathers.

A normal physical development is essential to the serene, happy child and parents. This is especially true and important to establish in the first years. Regular lives, guided by kindness, affection and firmness, will aid in quicker obedience. A child will quicker understand its parents and gain the envied respect for mother and father.

With the growth of body and the child up and about comes the experimental age. This is a period when patience of an extreme type needs to be used. The child cannot express itself and finds the cry an admirable ally and uses it to the limit. It wants what it wants and struggles hard to get it by hook or crook. What is said by the elders must be cautiously weighed. We will be considered truthful until we slip up, forget, and prove we are not accurate and do not do what we said we would. These first years are all important for the development of truth, honesty and love. Fear, when found, should be investigated with all fairness. Confine to simple facts and tell the truth. Here we frequently have to deal with the nursemaid. Her physique and character have an untold influence on those given into her charge, for she can produce fear, deceit, conceit, and other lasting traits. She has no real authority and yet is placed in the trying position of the mother. A good nursemaid is invaluable and not infrequently has more to do

with the character forming period than either parent. This is unnatural and in late years leads to hard misunderstandings to say the least.

In the pre-school age the mind is an ever-present question and because of the virile, virgin soil that it is we must look sharp. The memory is given and holds what it hears and sees. Curiosity must be satisfied; facts and truths explained. Don't let our mothers and fathers pretend they know for all too soon the facts will out and filial respect will suffer. Let us be prepared to answer questions of religion, God, and the hereafter. If we cannot answer, do not confuse the young mind, but be frank and acknowledge our ignorance. This period of education needs much thought and we physicians should use our influence to assist the puzzled families.

When school life begins the die is cast. Our characters, with all their variations, are expressed to the public in what the child says and does. Now we come into that stage when companions show their influence. Our young are already autocrats or democrats. Of course these characters are not formed, but the undesirable weeds are there. We must watch for them and still think of the future citizenship and our national responsibility.

The question of education usually interests the father. He begins to awake, whereas much of his worries can be relieved by thinking and acting in the earlier days. The question of school, public versus private, presents itself; more with us in the East than the West, where all go to the public school. In a part of the West at least a scholar attending a private school is considered deficient.

Adolescence and its problem in turn presents itself. True comradeship between parents and children will have solved these feared subjects. The only thing for us all is to know and think rightly; and to speak, when questions arise, simply and truthfully. We physicians, so often asked to speak to young people, should make our friends think and read. They are the natural ones to turn to and should be the best ones to handle this.

When college freedom dawns and boys and girls have fulfilled this primary education the generation has almost completed its maturity. Then it is that we see where our parental training has led, whether we have made good or no. Our children are the real answer to the questions,—have we really thought? have we realized that they have a mind as well as a body? Do we know that we are responsible to a very great extent for their generation or degeneration?

We medical men, it seems to me, hold a wonderful chance to assist our families to make good and thus carry out our opportunity of being well rounded out physicians.

DISCUSSION.

DR. MAYNARD LADD, Boston: I think we ought to congratulate Dr. Bowditch on the paper that he has read to us. It makes one realize that the subject of pediatrics is what the etymology of the word indicates—the care of children—that it is not limited entirely to that which is covered by the medical and surgical side of the care of children. We, to do justice to children that we have under us, must consider the psychological side and in a much broader way than we have been accustomed to in the past.

Now this question of parental responsibility is one that has always interested me and has puzzled me a great deal. I was much interested in a saying that was attributed to Holmes, "that the training of a child should begin with his great-grandparents." On that basis I see why Dr. Bowditch need not worry about the training of his own children. But what about the average parent? That is a difficult question. You get out of a thing what it was intended for, depending on the quality that is put into it. The inherited instincts are very strong in a child, and when you see the child reflecting the weaknesses of his parents, how are you going to correct these tendencies? It seems to me the American child sits on the family throne and wears the crown and wields the sceptre, and the American parent is a very selfish, self-sacrificing, indulgent person. It is because of those very virtues that the parents show that the children often develop into selfish and self-centered, undisciplined children. And yet when you see such children in your office, when you realize that the physical condition for which they are brought to you is dependent very largely on these uncontrolled instincts for which the parents are directly responsible, how are you going to correct that trouble? What can you do to make a weak and indulgent parent a wise guardian of the child? That is what we are up against all the time; and we must realize that a great many of these children have not good stuff in them. Some of them are constitutionally unfitted for the lives that are being laid down for them. Some of them cannot be helped a great deal, but there are many who are misfits who have been put in the wrong place; their adaptation to life has not been carefully studied. We can

do a great deal for that type of child. I wouldn't underestimate the importance that has been attached to the development of the physical health of the child; we could not emphasize that too much. But it seems to me that there has not been sufficient emphasis on the development of character building in the child, and it is in that the modern child is most lacking. He is selfish, he is self-centered, and he is undisciplined; and it takes time to knock these qualities out of him; and in the meantime in childhood, because of these qualities, we find many conditions for which the parents come to us for consultation.

There is one thing that I would also bring out, and that is the great responsibility which the child-placing agencies assume when they take children out of their homes and away from parental responsibility. We are waking up to a realization of the importance of more careful medical supervision of these children who are removed from their natural guardians, and it is extremely important that these agencies should appreciate the social and psychological as well as the medical side of the problem.

DR. HENRY I. BOWDITCH: I am glad to see so many present. The only trouble is you are afraid to stand up and make a contest. I always feel whenever I have anything to say as if I were throwing responsibility from my shoulders on to others,—that a thought once expressed by a mind, if properly demonstrated, should more or less stimulate the same kind of thought in other minds. In that way, although we may not see it, the world goes on advancing. You have had cases of undisciplined children come to you in your office that upset you completely. In 99% the lack of discipline has been due purely to an overworked mother who has not had the time to give her best to her children. It is unfortunate to see a poor woman who has worked all day long for a dollar and a half, go home and cook her food and be always perfectly happy from the time she came to the time she left. There, of course, it was mind over matter. We can help much better where we understand and can treat aur patients mentally. We must understand and always remember that child-bearing is The Greatest Thing in the World, and that if we do not admit it we are deceiving ourselves, because to be honest with ourselves, we all want to be married and we all want to have children. The only thing is to do it right. Therefore you have got to push on and make parents that you come in contact with more alive to their parental responsibility. I am poor at it myself. I see lots of deficiencies. It is a terribly interesting and live subject. There is a plan I have developed from which one may get a great deal of light. I have not spoken about this before except once in Chicago and that was for the information of "family forums." I have a group of families (friends), and we meet once a month. We all have children, and discuss the education of our children. This takes up every subject known to man as the child comes into contact with everything, even Bolshevism, the police, our help, public schools, movies, and so forth. We discuss an exceedingly interesting group of questions; we meet around a board without any servants present; we do our own waiting, our own cooking. The meetings last for a number of hours. The men like it, and the ladies like it. If you get the right idea, I assure you you can have a congenial, pleasant, productive winter's work. You can produce other family groups, maybe, among your friends. It does help you to solve problems many times about the government of children and the control of children; a very useful plan.

Original Article.

ORCHITIS IN MUMPS.

BY CONRAD WESSELHOEFT, M.D., BOSTON,

Visiting Physician, West Department (contagious), Massachusetts Homeopathic Hospital.

[From the Evans Memorial Hospital, Boston.]

(Concluded from page 494.)

PROPHYLAXIS.

The prophylaxis of orchitis in mumps is as yet an unsolved problem; consequently all measures intended to prevent this complication are more or less speculative and empirical. In the first place, rest in bed during the first eight days from the onset of the parotitis,—though logical from our theoretical knowledge of the nature of the disease,—does not bring practical results. Dukes[8] in 1899 stated that if patients were kept in bed eight days orchitis would not develop. But in 1900 he retracted this assertion, because in a later series of thirty cases he had orchitis in 20%, although "not one boy moved from his bed for any purpose whatever for eight days." In Radin's[9] series the patients who were allowed to go to meals and walk about the wards, showed no greater incidence of orchitis than those who remained in bed throughout. The frequent observation of orchitis in missed cases in some epidemics has been used as an argument that testicular involvement is increased by not keeping the patient quiet. This is purely speculative, as we have no means of knowing the incidence of orchitis in missed cases.

On the assumption that the contagium might

be transferred from the mouth to the urethra, and thus reach the testicle, patients have been cautioned to avoid handling the genitals. The results of carrying this theory into practice have also been found to be negative from clinical research. In the mumps wards at Camp Wheeler, Georgia, it was found "that careful sterilization of the hands and protection of the glans penis did not reduce the incidence of the complication."[79]

Olivier* recommended the use of a continuous faradic current to arrest the atrophy of the testicle. His results, however, do not seem significant, and those who tried his method were not sufficiently encouraged by successes to venture any systematic clinical research on this point.†

Quoted by Lauterbach,[67] *loc. cit.*, and Pliqué,[7] *op. cit.*, p. 168.

Eisenschatz used massage of the testicle with the hope of reducing the swelling and obviating atrophy, but without success. (Comby,[1] *op. cit.*, 197.)

The use of convalescent mumps serum may be of value in preventing orchitis and subsequent atrophy, but here again the efficacy of this measure has not been properly established. In 1915 Hess[74] used serum from convalescent cases in 20 children who were fully exposed to the disease during the epidemic at the Hebrew Infant Asylum, and none of these children contracted the disease. Gradwohl[44] and his associates used 5 cc. of convalescent mumps serum in several cases. This seemed to allay the acute symptoms, but the experiment was not sufficiently far-reaching to show whether the serum has a prophylactic value for orchitis, or whether, if used during this condition, it prevented atrophy.

TREATMENT.

The treatment of orchitis includes measures against the symptoms in the acute stage, and the endeavor to avoid subsequent atrophy. In the first place, we have to deal with the acute pain. The local application of cold would seem to be the first logical step. It has been my experience that a cold compress frequently renewed is just as efficacious as an ice bag in relieving the pain.* Whether or not it has controlled the swelling is a difficult question to decide; furthermore, the local application of heat is more agreeable in some cases. Presumably such external applications as allay pain would tend to do so by checking the swelling, since the pain is the result of pressure from the swelling, but the benefit derived from cold and heat in this way is still a matter of discussion which we cannot enter into here. Elevation or support of the testicles, with or without hot or cold applications, is of help.

Schottmüller found cold compresses to be usually uncomfortable and without benefit in reducing pain. (*op. cit.*, p. 91.)

All manner of local applications have been recommended, including turpentine, liniments, ichthyol, hamamelis, belladonna, guaiacol, methyl salicylate, "poppy head water," lead and opium, iodoform, collodium, ointments of iodine or mercury, etc. Cauterization, electricity, and the application of leeches have been employed. Those experienced in dealing with this condition have judged the results they have obtained by these measures with scepticism, and I mention them as a mere matter of historical interest. For the most part they are based on the wildest sort of empiricism, and their efficacy has always remained exceedingly doubtful when checked up by careful clinical observations covering a sufficient number of cases.

The same may be said of the use of drugs internally. At one time jaborandi was employed somewhat extensively in France, but its failure in the hands of men like Servier* caused it to fall into disuse.† Antipyrin, sodium salicylate,‡ mercury, lead,§ belladonna

Servier[38], *op. cit.*, p. 535.

Martin[37], in 1894, used pilocarpine s. q. and claims that benefit was derived from its use, particularly in suppressing the pain, although it is to be noted that six of his nine cases of orchitis developed atrophy. Martin's observations even on this small series deserve full consideration in view of his painstaking researches in regard to the relative value of various treatments in 48 cases of mumps. (*Op. cit.*, p. 210.)

Luche (*loc. cit.*) found salicylic acid useless as a prophylactic for mumps, but it is interesting that he used it internally in conjunction with iodine ointment externally as routine treatment, and had only one case of orchitis out of 118 cases of mumps.

Joly[73] used sodium salicylate as a routine and had 13 cases of ocular complications out of 37 cases of mumps. He does not mention the occurrence of any orchitis.

Mercury and lead have both been recommended externally, but no conclusive evidence has been given in support of these applications. In so late a work as 1915, Back recommends the old-fashioned lead and opium wash in conjunction with "adequate purgation" for orchitis (Back, I., in A System of Treatment, Latham and English, New York., 1915, Vol. ii, p. 906). Regarding this preparation: "It is an irrational mixture, as the opium principles are not absorbed; its action is that of lead acetate." (Bastedo, W. A.: Materia Medica, Pharmacology, and Therapeutics, Philadelphia, 1914, p. 353.) And what can be expected of the lead acetate in this condition? Nothing so far as can be learned from Bastedo, Cushny, Meyer and Gottlied, and other pharmacologists.

Since no direct beneficial action can be expected from the local application of mercury and lead, the only benefit would have to come from an indirect action. A possible homeopathic action is explained by the fact that mercury by mouth has been known to set up orchitis, but the evidence of this is scanty (Cyclopaedia of Drug Pathogenesy, London, 1890, Vol. iii, p. 276.) On the other hand, in reports of lead poisoning we have infrequent examples of orchitis followed by atrophy. (*Ibid.*, p. 655): Schulz, H.: Wirkung u. Anwendung der Unorganischen Arzneistoffe, Leipzig, 1907, p. 253.)

and pulsatilla* have all been used extensively in orchitis, but nowhere has clinical research thrown any light on their actual remedial or prophylactic effects by oral administration in this condition. Until internal or external use of any drug can be shown by clinical research to be of definite value, or even of more probable value in orchitis than has yet been demonstrated, all pharmacotherapeutic measures must rest on speculative hypotheses. It must be remembered that simple acute orchitis is in itself self-limited, and is often of short duration; consequently one should weigh carefully any evidence of a possible remedial nature derived from measures directed toward the diminution of the pain and the swelling, as well as toward the avoidance of subsequent atrophy.

The constitutional treatment need not be entered into here, since this depends upon the degree of toxaemia, and upon the parts affected, such as the gastrointestinal tract, the pancreas, the brain, etc. These complications must be taken care of according to the usual methods. Baths are sometimes beneficial when the temperature is very high, and are more efficacious and safer than antipyretic drugs. I fail to see any indication for the routine purging advocated since the days of Hippocrates and Galen, and I have yet to be convinced that internal medication is satisfactory in orchitis.

Scepticism in these darker fields of medicine should encourage research rather than intolerance.* The treatment of orchitis may be compared in many respects to that of acute otitis media. Local applications are known to be palliative in both conditions, but when these fail to control the symptoms, surgical interference should be preferred to the use of opiates, both to relieve the pain and to avoid the more serious consequences. An incision through the tunica vaginalis and multiple incisions of the tunica albuginea relieve the pressure by the escape of the serous fluid and stop the pain, and we may infer that this avoids epithelial and interstitial destruction from continued high tension. Still I cannot feel that this operation is indicated so often as is paracentesis in acute otitis media or the multiple incisions in acute gonorrheal epididymitis, but in experienced surgical hands it is obviously as safe and quite as logical.* In mild cases with only a moderate degree of pain and swelling, it may be only necessary to cut through the tunica vaginalis. Schottmüller† cites the case of a unilateral orchitis in a boy of 12 treated on the second day by a puncture of the tunica vaginalis, which was followed by lowering of the temperature and by uneventful recovery without subsequent atrophy. The extent to which operative treatment prevents testicular atrophy must await the reports of further observations.

Another method of treatment which offers considerable hope is the use of convalescent blood serum. Gradwohl* and his associates used 5 cc subcutaneously or intravenously. They report that the pain and fever were promptly abated, and in one case of orchitis the pain was relieved in five hours. No remark is made regarding subsequent atrophy. The value of convalescent serum would appear to be in its prophylactic virtues. Thus it may be used to ward off the disease itself if given early enough; or, if given during the acute parotitis it may avoid other complications. This, however, is a question for the future to decide. For the present there can be no objection to its

Pulsatilla has been strongly recommended by the homeopathic school, owing to the frequency of pain in the testicle and spermatic cord after taking the drug. Here again the evidence of its homeopathicity to true orchitis is meagre. (Cyclop. Drug Path. *ibid.*, p. 689-700). Clinical evidence in its favor is lacking so far as any research is concerned. Lowe[76] obtained no benefit from pulsatilla in his cases. At the West Department of the Massachusetts Homeopathic Hospital pulsatilla in low dilutions has been of no apparent benefit in allaying the pain or shortening the course of mumps orchitis.

The following historical note on the treatment of mumps in 1810 gives food for thought, lest we fancy our modern ideas and methods beyond the criticism of future critics:

"I endeavored to bring on suppuration by frequently renewed hot poultices . . . Blisters and spirituous applications brought the disease to a speedier termination, while the application of flannel or leaving it to nature only protracted it for a day or two longer; and when the inflammation had once proceeded to the testicle, no method was successful in bringing it back to the parotid gland. . . . After the metastases to the testis had taken place, I was on my guard against its proceeding onward to the brain. A strict antiphlogistic regimen was enjoined, full and repeated purging employed; and, where the habit of body, pain, and febrile symptoms, pointed out the necessity or repetition of venesection, it was had recourse to. Emetics were given in several cases with the evident effect of shortening the period of inflammation, and when at its acme, of rapidly reducing the swelling." Headache developed in two cases. In these, "no time was now lost in taking active measures. They had formerly been bled and purged; the bleeding was repeated to the extent of 24 ounces, from a large orifice; drastic purgatives were given; the whole head was shaved; blisters applied to the temples; and cold over the rest of the surface . . . In this way the headache was relieved in 36 hours." (Noble[23] *loc. cit.*)

The operative treatment of orchitis and epididymitis of gonorrheal origin has met with success in the hands of many genito-urinary surgeons. Vidal used a bistoury. Trékaki preferred the bistoury to the trocar in the treatment of 20 cases, and remarked that the pain was alleviated in one to six hours, and often immediately. This treatment was repeated as often as necessary. Velpeau, Monod, and Tocrillon cut the tunica vaginalis. See Trékaki: Maladies vénériennes. De la ponction de la tunique vaginale dans l'orchite aigue blennorrhagique. Gazette Méd. de. Paris, April 16, 1892, p. 184; Baermann, G.: Ueber die Pathogenese der gonorrhoischen Epididymitis und ueber Versuche dieselbe durch Punktion zu behandeln. Deutsch. med. Wochensch., Oct. 1, 1903, p. 720; Lydston, G. F.: Impotence and Sterility, Chicago, 1917, pp. 112-114; Abraham[77]: The Operative Treatment of Acute Epididymo-Orchitis. Edit., The Hospital, London, April 6, 1912, p. 9.

Op. cit.[3] p. 49.

Op. cit.[41] pp. 726, 727.

administration early in the acute orchitis, when local applications of heat or cold are inadequate, but it should not be used at the expense of operative interference, which is then the only logical procedure.

PROGNOSIS.

Since orchitis occurs in 18% of all cases of mumps in the male, and since appreciable atrophy takes place in 55% of all cases of orchitis it is natural to infer that the impairment of sexual function may be a serious consideration in this disease. However, the degree of such impairment, as figured by the degree of atrophy, is not an index of the procreative power, so long as the healthy portion of the testicle can supply enough spermatozoa to guarantee fertilization of the ovum. The anatomy and physiology of the male generative organs offer possibilities in the way of assuring procreation even after considerable damage to one or both testicles. Nevertheless, it is well to bear in mind that the testis is not always the only portion of the generative tract to suffer. Destruction of the epididymis or of the vas deferens, and atrophy of the prostate and Cowper's glands, may place greater difficulties in the way of reproduction than partial testicular atrophy, but destruction of these adnexa is much less common than in gonorrhea, the pathology of which must be clearly differentiated from that of mumps.

Atrophy of the testicle may, in the course of time, become associated with an increasing neuralgic pain radiating up and along the spermatic cord. In the case recorded by Stolz*

Stolz[65] *op. cit.*, p. 395.

this pain was so severe that the testicle was removed by operation, which afforded complete relief. Curling warns us that even after castration the pain may return in the cord.*

Quoted by Stolz[65], *op. cit.*, p. 404.

Nowhere have I found mention of a eunuch as a result of mumps,—a fact which is explained by the infrequency of orchitis before puberty. It cannot be denied, however, that mumps may bring about sterility in the male, as evidenced by the only two cases which I have been able to gather from the literature. In one of these cases, however, the double testicular atrophy was not stated to be complete, but it was associated with induration of the epididymis: furthermore, there is reason to believe that a portion of the testicular tissue might have been normal. In the other case both testicles were said to be completely atrophied and the epididymides were not apparently affected.

Partial atrophy of both testicles may diminish both sexual desire and sexual powers, but it does not in itself abolish the power of procreation. It is therefore incumbent upon the medical profession, as I have already suggested, to give these patients every assurance of being able to regain their sexual functions, so that fear of impotency may not add another obstacle to their already impaired generative organs.

Finally, we may hope that the enlightment that has come from timely surgical interference, when indicated by the severity of the symptoms, may before long render the bugbear of sterility from mumps orchitis a thing of the past.

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Book Review.

Eating to Live Long. By WILLIAM HENRY PORTER, M.D. Chicago: The Reilly and Lee Company.

One of the most important problems with which men and women are confronted is the question of proper nutrition for the development and maintenance of their health, well-being, and physical and mental efficiency; yet there are few matters which are considered with less intelligence and concern by the majority of people. "Eating to Live Long" expounds the principles of right living in regard to eating, and will be of interest both to those who are seeking some means of being restored to health and to those who wish to increase their physical and mental powers and more thoroughly to enjoy living. The author explains food as a medicine and as a poison, depending upon the kinds and combinations of food products and the needs of the individual; his theories, in part radical and not all in complete accord with generally accepted dietetic principles, have been developed as a result of careful study, observation and experiment. Foods, fads, and fallacies to be avoided are discussed, and suggestions are made for securing a balanced diet for normal persons and for correcting pathological conditions due to depraved digestive and metabolic processes. The book explains various physiological aspects of food and the relation of diet to physical and mental efficiency in such a way that any intelligent individual may gain a clear knowledge of the subject and apply it to his own needs.

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BOSTON MEDICAL AND SURGICAL JOURNAL
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VITAMINES.

IT has long been known that there were substances in food which are necessary to the development of human well being which are apart from the heat producing portions of caloric value of the food. These unknown substances are termed *vitamines*. Chemists and physiologists do not know exactly what these substances are any more than the physicists can tell what electricity is, but they know what the vitamines can do, or rather what will happen to the person who is deprived of them.

Three forms of vitamines are recognized. The first, the scurvy preventing or anti-scorbutic vitamine, has been recognized for a long time. Scurvy has been a well-known disease especially in the time of the old sailing vessels. When Massachusetts was a sea-going community scurvy was common on shipboard, where it was impossible to provide fresh foods and vegetables for long voyages. It became known that lime juice, and fresh vegetables when possible, prevented scurvy or cured it when it had developed. Later, when the artificial infant feeding was developed it was found that babies fed on carefully prepared, that is sterilized, milk, often did not thrive and sometimes developed hemorrhages resembling old-fashioned scurvy. This condition of the baby, when recognized, was quickly overcome by giving the child orange or other fruit juice. The vitamine preventing scurvy is known as the anti-scorbutic vitamine. It is destroyed in food by heat and oxidization. It can be replaced and scurvy prevented by the administration of fresh orange, lime, or lemon juice; also tomato juice, either freshly prepared or from a newly opened can (for the heat alone does not seem to destroy the valuable vitamine of the tomato). Incidentally, tomatoes have present the two other forms of vitamines and so are specially valuable as a food constituent. This accounts for the great popularity that both fresh and canned tomatoes play today in the diet of the community. Somehow or other the public has instinctively recognized the need of tomatoes to their well being and adopt them as part of their diet. The laboratory has demonstrated scientifically the value of the tomato to everyone as a palatable solution of all of the vitamines necessary for human well being, thus giving its approval to the tomato's popularity as a food constituent.

These have been found in animal foods, especially butter fats. Hence they are found in whole-milk, cream, butter and cream cheeses. Lard alone of the animal fats seems to be deficient in this form of vitamine. The vegetable oils do not appear to carry this very necessary vitamine. It is also found to be present in the yolks of eggs.

The fat soluble vitamine is probably needed especially during the growing period of life. It is needed for the complete development of a perfect body. Although the action of this form of vitamine is less understood than either of the others, there is more evidence of likelihood of serious pathological results arising in everyday life from a shortage of fat soluble vitamines than of the other vitamines.

Like the other two vitamines, the fat soluble vitamine as a chemical entity is unknown. Recently it has been demonstrated that this fat soluble vitamine has been found in certain plants such as spinach, tomatoes, and especially

in yellow pigmented vegetables such as carrots, peas, sweet potatoes, yellow corn, etc.

The so-called water soluble vitamines have to do largely from a practical point of view, with the subtle thing called appetite. The loss of appetite is brought back by the presence of the necessary vitamines in the food, not simply by the increased injection of food or food flavors. That is to say, the vitamine must be present before the food can or will be taken and so utilized in the metabolism, or, in other words, used to build up the body tissues.

The water soluble vitamine—the appetite-producing vitamine—has been refined out of our sugar, bolted flour and polished rice. Also from our refined oils and fats. It is not found in ordinary meat or fish. No great harm need result from this careful purification of foods which furnish the greater part of the calories used by the average American household, because other forms of food are generally added in sufficient quantities to supply the need for the necessary vitamines. Most people instinctively eat sufficient vitamine-containing foods because milk, eggs and kidneys and liver are animal foods rich in vitamines, and in addition most of the fruits and vegetables also contain the vitamines.

Fresh milk contains all three varieties of vitamines at present known. The vitamines of the fats are resistant to heat and are constantly present in eggs and milk and the water soluble vitamines are also able to withstand heat. On the other hand, the anti-scorbutic vitamine is destroyed by raising milk slowly to a degree of heat necessary for pasteurization. Such milk rapidly loses its anti-scorbutic vitamines.

It is known from many experiments that no animal can live upon a food which is a mixture of *pure* protein fats and carbohydrate, and even when the necessary inorganic salts are carefully added the animal still cannot flourish. The animal body is adjusted to subsist either upon plant tissues or the tissues of other animals and these contain countless substances other than the pure protein starches, fats and salts.

Three of these active substances have been recognized under the term vitamines: Anti-scorbutic vitamines which prevent scurvy; fat soluble vitamines which favor body growth; water soluble vitamines which have to do with appetite.

The presence of all three vitamines are essential to bodily well being and even though the symptoms of complete vitamine starvation may not be present, nevertheless many vague symptoms of malnutrition often may be due to an insufficiency of vitamines in the diet.

The refined foods for the most part have lost their vitamines, thus our staple foods, such as flour, sugar, rice, macaroni, vegetable fats, lard, and plain meats are much deficient in vitamines.

Fortunately a comparatively small amount of vitamine is all that is necessary to supply the requisite quantity for the body's development and well being. All of the essential vitamines are to be found in fresh milk, eggs, coarse flours, most vegetables and fruits, especially tomatoes, oranges, grape fruit, lettuce, spinach, cabbage, cauliflower, and other leafy vegetables; also peas and beans and grapes and other fruits. There is, therefore, no need of worry about a deficiency of vitamines when foods rich in vitamine are so easy to add to the ordinary dietary.

METHODS OF IMPROVING RURAL SANITATION.

ALTHOUGH the importance to a country of adequate rural sanitation is realized by intelligent and far-sighted persons, it is perhaps less generally appreciated that the problem of promoting measures whereby sanitation can be efficiently managed in rural communities is beset with many difficulties. The subject has been discussed in an article entitled "Methods of Increasing the Efficiency of Rural Sanitation," by T. J. Robinson, published in a recent *Public Health Report*.

The two chief difficulties to be met in trying to raise the standard of rural sanitation seem to be the prevailing ignorance of the country folk in matters of this sort, and the necessity of extracting from their meagre and hard-won earnings enough money with which to carry on the sanitary improvements which may be needed. It is only, therefore, through the education of the people and the gaining of their intelligent and willing coöperation that we may hope to achieve any appreciable and lasting results. Neither legislation nor the efforts of public health officials can bring about any permanent and progressive improvement until the individual and the public mind both

are awakened to an intelligent interest in the subject.

Three methods have been suggested for educating the people in rural communities in public health methods: first, to reach through the public school the mind of the growing boy and girl; second, to distribute public-health literature among the adults of the community; and third, to come in personal contact with homes and families by the activities of the so-called "man on the job." Through the public school it would be possible even though our sanitary laws are meagre and sanitation is at present given little attention in many of our rural districts, so to instill into the youthful mind of the school boy and girl the fundamental principles of sanitation that a sense of responsibility to the community in these matters would develop increasingly until it could be exercised in carrying out the duties of citizenship. Among the larger boys and girls, the organization of sanitary clubs, supplied with public-health literature and active in the discussion of improvements at monthly meetings, would facilitate greatly the work of effecting improvements both at school and at home.

A second way of educating the rural community is by the careful distribution of public-health literature among the older members. The results achieved by this method are slow in being realized, and measured by the manner in which the work is conducted. Merchants and business men in general, for instance, are prone to throw such literature unperused into the waste basket, together with the bulk of advertising matter with which they are besieged. The farmer, however, as a rule, has little reading material of any sort, and literature received into his household is often eagerly read both by himself and by his family. It is among this class of people, therefore, that distribution of public-health material proves to be most advantageous.

Probably the most important channel by which the education of rural communities in the principles and practice of sanitation can be accomplished is through the efforts of the "man on the job." Such a man not only must be able to talk with enthusiasm and common sense on the subject of rural sanitation, but he must also be so constituted that he can take a real personal interest in the homes which he visits, realizing the value of his work in terms of human lives and eager beyond a degree of dutiful observation in watching the carrying out of his recommendations. A man of this sort after convincing the people of the necessity of sanitary improvements, will achieve satisfactory results. The importance of sanitary measures has been recognized by the men who have served in the Army and Navy. A more active interest in this subject would be well taken at this time.

PREHISTORIC SURGERY IN NEW MEXICO.

The American Museum of Natural History in New York has called attention to an interesting example of prehistoric surgery discovered during the course of an excavation of a Pueblo ruin in New Mexico. The specimen illustrates the early use of splints and bandages for fracture. This is not the first evidence that attempts were made by prehistoric man to restore injured bones to something of their original condition; fractures of the skull, for instance, are said to have been treated by simple trephining as early as the Stone Age. The skeleton found in New Mexico shows the left forearm with two breaks and extreme displacement. The operative procedure evidently employed shows a remarkable knowledge of cause and effect. The arm was surrounded by at least six wooden splints about seven inches in length, one-half an inch in width, three-sixteenths of an inch in thickness, and fashioned by hand. Although the wrappings are now gone, it is evident from the position of the splints that they originally were held together in some way. As the Pueblian unfortunately died before there had been any union of the ends of the bone, the quality of the surgery can hardly be determined. Whether or not these aborigines were able to set broken bones is uncertain; the present example shows, however, that even in the Stone Age the Pueblo had sufficient skill to fashion splints and to use them in the treatment of fractures.

MEDICAL NOTES.

Mobile Training Courses in Tuberculosis. —The U. S. Public Health Service, which for some time has been making special efforts to fa-

cilitate the diagnosis of tuberculosis and especially to bring about its recognition in its very earliest stages, has recently opened mobile training courses for the purpose in Illinois, Wisconsin, Michigan, and Washington. Similar courses have already been given in Texas, Louisiana, Missouri, Virginia, West Virginia, Maryland, and Pennsylvania.

These courses, which last seven days and are very intensive, are at present open only to physicians attached to the Public Health Service; but after all of these in the various states have completed the course it is hoped that it may be possible to hold similar courses for the benefit of other physicians who may desire to attend.

The instruction is given by recognized experts in the diagnosis of pulmonary tuberculosis, and is supplemented by the showing of a remarkable motion picture, in six reels, which minutely illustrates every phase of the disease.

U. S. MARINE HOSPITAL IN CHICAGO.—The U. S. Public Health Service on September 30 opened its Marine Hospital in Chicago as a general clearing house for soldiers and sailors residing in the states of Illinois, Wisconsin and Michigan, who are suffering from nervous and mental diseases. Dr. L. M. Wilbor, surgeon of the Public Health Service, left September 29 for Chicago to take charge.

Any member of the military or naval forces of the United States who needs such attention may come or be sent to the hospital for observation and diagnosis, and will receive, in addition to the services of the group of able Public Health Service surgeons who accompany Dr. Wilbor, the benefit of all the facilities for diagnosis afforded by the vast instrumental resources and expert neuropsychic talent of the great city.

Later, the patient may be returned to his home with or without instructions to report from time to time to the hospital for further observation; or he may be transferred to such other hospital as may seem best suited to his condition. Before returning a patient to his home, its conditions and their probable effect upon him will be carefully considered.

The hospital, which started with 130 beds, has an allowance of $85,000 for remodeling and other purposes. It will serve as clearing house for the eighth district of the Public Health Service.

The Massachusetts Medical Society.

STATED MEETING OF THE COUNCIL.

OCTOBER 6, 1920.

A STATED meeting of the Council was held in the Boston Medical Library, Wednesday, October 6, 1920, at 12 o'clock noon. The President, Dr. Alfred Worcester, was in the chair and the following sixty-three councilors present:

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J. L. Ames.
S. H. Ayer.
Loretta J. Cummins.
Channing Frothingham.
W. J. Gallivan.
J. E. Goldthwait.
W. C. Howe, M.N.C.
F. L. Jack.
C. H. Lawrence.
C. M. Smith.
J. S. Stone.
F. H. Williams.
WORCESTER,
W. P. Bowers, Ex-P.
G. E. Emery.
E. L. Hunt.
A. G. Hurd.
C. B. Stevens.
G. O. Ward.
F. H. Washburn.
S. B. Woodward, Ex-P.
WORCESTER NORTH,
E. L. Fiske, M.N.C.
W. F. Sawyer.

The reading of the minutes of the last meeting was omitted by vote and the minutes were accepted as printed and published.

Dr. Charles H. Lawrence presented and explained the following report of the Committee of Arrangements and it was accepted without discussion.

REPORT OF THE COMMITTEE OF ARRANGEMENTS.

After conference with the President, the Committee of Arrangements wishes to submit to the Council the following tentative plan for the Annual Meeting of 1921:

On account of the meeting of the American Medical Association in Boston, the usual Section meetings will be omitted in 1921, and officers of the Sections will remain in office through the anniversary of 1922.

Tuesday, May 31, there will be meetings of the Supervisors at 4.30 P.M., and the Council at 5 P.M. The Shattuck lecture will be at 8 P.M., all of these meetings being held in John Ware Hall at the Boston Medical Library.

Wednesday, June 1, there will be the Annual Meeting at 9.30 A.M., followed by papers and by the annual discourse at 12 noon. The dinner will be at 1.30 P.M., all the exercises on Wednesday being held at the Copley Plaza Hotel.

The Committee suggests that it will be advantageous to print the dates of the 1921 meeting from time to time in the BOSTON MEDICAL AND SURGICAL JOURNAL, in order that members may become accustomed to thinking of those days as reserved for the anniversary.

The Committee would be glad of any suggestions from the Council in regard to the meeting.

CHARLES H. LAWRENCE, *Chairman.*

Dr. Samuel B. Woodward read the report of the Committee on Membership and Finance as to membership, asking for suggestions or corrections from the Council. There were none and the report was accepted and its recommendations adopted.

REPORT OF THE COMMITTEE ON MEMBERSHIP AND FINANCE, ON MEMBERSHIP.

The Committee on Membership and Finance respectfully recommends:

1. That the following named Fellows be placed on the retired list, in accordance with the provisions of Chapter I, Section 5, of the by-laws:

Lewis Lincoln Bryant, 354 Harvard Street, Cambridge.
Chester Alonzo Dorr, 304 Main Street, South Hingham.
Laura Viola Gustin Mackie, 157 Pleasant Street, Attleborough.
George Harlin Pillsbury, 36 Central Block, Lowell.
William Hillman Sylvester, 6 Clarendon Street, Natick.

2. That the following named Fellows be allowed to resign under the provisions of Chapter I, Section 7, of the by-laws:

Clarence Duane Cudworth, of Winstead, Connecticut, as of Dec. 31, 1919.
Joseph Emmanuel Ingoldsby, 11 McClellan Street, Dorchester, with remission of dues.
Thomas Walter Procter, of Sagamore, with remission of dues.
Edward Hammond Risley, of 57 College Avenue, Waterville, Maine.
Frankwood Earl Williams, 50 Union Square, New York, as of Dec. 31, 1919.

3. That the dues of Frank Robert Sedgley, of West Roxbury, for 1920 be remitted as he is still in the United States service.

4. That George Lincoln Walton, of Boston, retired member, be restored to active membership, in accordance with his written request.

5. That the following named members whose dues are in arrears for three or more years, be deprived of the privileges of membership, as provided for by Chapter I, Section 8, of the by-laws:

Harold Winslow Ayres, Lowell Road, Groton.
Lawrence Francis Boland, Boomer, West Virginia.
Robert Emmett Cleary, 255 Maple Street, Holyoke.
Lawrence Henry Goodwin Collier, 212 South Street, Jamaica Plain.
Nathan Harry Ginsburg, Brockton.
Thomas Francis Grady, 508 Summer Street, Lynn.
Henry Harrison, 153 Huntington Avenue, Boston.
Patrick Eugene Hurley, 160 Chestnut Street, Holyoke.
George Elbert King, 71 Beach Street, Wollaston.
John Brayton Martin, 25 Newhall Street, Lynn.
Ira Humphrey Prouty, 69 Pleasant Street, Marblehead.
Solomon Robinson, 141 Green Street, Worcester.
Edgar Amos Stoneman, 182 State Street, Springfield.

For the Committee on Membership and Finance,
SAMUEL B. WOODWARD, *Chairman.*

The Secretary read the reports of the committees appointed at the last meeting to consider the petitions of the following for restoration to the privileges of fellowship. Each report was acted on separately. All were accepted and their recommendations adopted: J. D. Lucas, J. T. Cahill, A. J. Choate, J. R. Hobbie, Mary P. Dole, F. B. Colby.

DR. S. B. WOODWARD: You remember the vote passed June 8, 1920, authorizing the Committee of Nine to take charge of the BOSTON MEDICAL AND SURGICAL JOURNAL. No communication has been received by the Committee on Membership and Finance from that committee. The present contract with the managers of the BOSTON MEDICAL AND SURGICAL JOURNAL expires January 1. If the Committee of Nine is not prepared to take charge it will be necessary to make some arrangement with the present managers to publish after that date. I understand there is every prospect that some arrangement will be made, but there is no other meeting of the Council before February and if that arrangement is not completed something will have to be done if the JOURNAL is to be continued. It may be necessary to call a special meeting of the Council.

The Committee makes the following recommendation:

REPORT OF COMMITTEE ON MEMBERSHIP AND FINANCE, ON FINANCE.

The Committee on Membership and Finance recommends that the affiliation with the BOSTON MEDICAL AND SURGICAL JOURNAL be continued until such time as the so-called Committee of Nine is prepared to make a report to the Council, at an expense to the Society of . . . per annum for each member in good standing, or, if the contract be abrogated before January 1, 1922, at a rate which shall be proportional to the annual rate, as stated above.

For the Committee on Membership and Finance,
SAMUEL B. WOODWARD, *Chairman.*

You will note that the amount is left blank in the recommendation. The present amount of $3.00 for each member in good standing is understood to be less than the expense of maintaining the JOURNAL. It was the understanding of the Committee, however, that the chairman should be authorized to fill in whatever amount was demonstrated to him to be essential for the maintenance of the JOURNAL.

Now I am informed by Dr. E. C. Streeter, an owner of the JOURNAL, that the expense for

some time has been at the rate of $4.50 instead of $3.00 and I take it that the Committee on Membership and Finance will be perfectly willing to uphold my suggestion that $4.50 be placed in that blank space and that until the Committee is ready to take the JOURNAL, the sum be at the rate of $4.50. Perhaps you would like to hear some statement from Dr. Streeter, and if so, I will ask that he be allowed the privilege of the floor before the vote is taken on this recommendation.

It was voted that Dr. Streeter be asked to take the floor.

DR. E. C. STREETER: I didn't mean to bring the troubles of the JOURNAL before the Council. The Committee of Nine was on the point of acting during the late summer. Even if no transfer is made it will be necessary that we ask for a higher rate from members. The $4.50 rate is based on careful estimates made by Mr. R. D. Pratt, who is publisher of the JOURNAL, and by Dr. R. M. Green, who is business manager as well as editor. This estimate has been carefully examined by the Committee of Nine and I think they will corroborate the statement that the actual prospective costs in 1921 will be at the rate of $4.50 per member from the Society. In other words, it will cost each subscriber approximately $4.50 for his JOURNAL. Costs have gone up, and they are not coming down in the printing world. Within the past month printers have asked for a 16% increase. Paper is costing us from 105% to 110% more than when we made our contract with the Society. Of course, in 1915 the cost was at the rate of $3.00 per member and in the year following we were able to refund $500 to the Society, which showed our estimate was a little high, but we took too much pride in making that refund and we have been straitened ever since. The JOURNAL is run at present without remuneration to the editors and we are dispensing with the services of the business manager and reducing the office force. By strenuous coöperation with the printer, who gives part time, we are saving some money, but we will run at a very distinct loss even with these economies in 1921 unless the rate of the JOURNAL is radically different from what it is at present. The sum of $4.50 is only an estimate, but it looks as though it would hold. Our reduction cost has been at the expense of the appearance and character of the JOURNAL. We have saved on reprints and the cost of producing illustrative matter which is a heavy loss to the JOURNAL, but with additional reimbursement from the Society we could restore the quality of the JOURNAL in part.

THE CHAIR: The question before the Council is on the adoption of the recommendation of the Committee on Membership and Finance which you have heard. It is so voted.

DR. WOODWARD: I would like to make a motion that $4.50 be inserted in the blank space in this recommendation.

Motion put and seconded.

THE CHAIR: It has been moved and seconded that the blank in the recommendation shall have substituted for it $4.50 and then the motion you will be asked to act on is that the affiliation with the BOSTON MEDICAL AND SURGICAL JOURNAL be continued, until such time as the so-called Committee of Nine is prepared to make a report to the Council, at an expense to the Society for each member of $4.50, or if the contract be abrogated before January 1, 1922, at a rate which shall be proportional to the annual rate as stated. Is there anything to be said on this motion?

DR. DOLAN: I would like to hear some remarks from the Committee of Nine.

DR. J. S. STONE: In Dr. Homer Gage's absence today he asked me to report that the Committee were unanimously in favor of taking over the JOURNAL and are ready to do it at any time. There are certain details of management which they were unexpectedly unable to arrange up to the time of this meeting and that is what has caused the delay. They are ready to take over the JOURNAL as soon as the details of continuing it can be arranged.

THE CHAIR: May I ask, Dr. Stone, if in case of those details being arranged before the next meeting of the Council, whether that Committee has any authority to pay out any money. As I understand the situation that Committee of Nine was to confer with the Committee on Finance before this meeting of the Council and it was expected that today we should pass whatever votes were necessary regarding the money. My question is, how between now and the next meeting of the Council does the Committee of Nine propose to enter into any business arrangement?

DR. STONE: As I understand it, that vote authorized the Committee to use any money which had been appropriated for the present affiliation with the JOURNAL for continuing the JOURNAL, and if they needed additional money they should ask for it from the Committee on Finance.

THE CHAIR: That is true, but in the event of money being required will there be enough money remaining from the sum made up by the $3.00 per year from each member, still in the hands of the Treasurer ready to be paid over? It will be paid over of course to the Committee, but is that enough?

DR. STONE: There will be enough to acquire the JOURNAL and I think it can be so arranged that until the meeting in February the JOURNAL can be continued.

DR. WOODWARD: The statement was made to me that it was the understanding of this Committee, Dr. Gage, chairman, that that vote authorized them to make contracts to go on and manage the JOURNAL, but if they wanted to spend money for the purchase of the JOURNAL they would go to the Council; otherwise they would go ahead. There was some controversy between the Chairman of the Committee and myself.

DR. STONE: Was it the question of the purchase of the JOURNAL or the running of it?

DR. WOODWARD: The statement made to me was that if it was necessary to expend money to obtain possession of the JOURNAL that then the Committee of Nine must come to the Committee of Finance, but otherwise there was no necessity for conferring with the committee at all. They are distinctly authorized to make a contract.

DR. STONE: I will say that since the purchase of the JOURNAL has been considered the present owners stand ready to give the JOURNAL over to the Society with its good will for the sum of one dollar.

DR. WOODWARD: I understand that.

DR. STONE: Now I don't know whether we are to go to the Committee on Finance for that one dollar?

DR. WOODWARD: Well, you will have to come to the Chairman. I will stand on my rights.

THE CHAIR: Is there any further discussion?

DR. WOODWARD: For the benefit of my Committee I would like to have the question settled as to exactly what that vote of the Council implied. How much conference must be had with the Committee on Finance from that Committee? I'd like to know if that Committee has authority to go ahead and manage the JOURNAL and decide how much shall be paid for it by each member without conferring with us?

THE CHAIR: The Secretary will read the minutes.

The three votes of the Council, June 8, 1920, concerning taking over the JOURNAL were read by Dr. Burrage.

DR. WOODWARD: I want an interpretation of the votes.

THE CHAIR: Is there any question? It seems plain, Dr. Woodward.

DR. WOODWARD: My Committee cannot report at this October meeting on expenditure of money.

DR. STONE: To clear matters up I would like to move that the three votes read by the Secretary be amended to apply to the February meeting instead of the October meeting.

THE CHAIR: If Dr. Stone will wait until we get this original report out of the way, then his amendment will very likely solve the whole difficulty. Is there anything further to be said on this question?

DR. DOLAN: The reading of the minutes indicates to me that the Committee has power to proceed. I don't see any sense in putting that $4.50 in there. Under the circumstances it seems that they have the power to do as they like as far as the cost is concerned.

DR. WOODWARD: The $4.50 has nothing to do with the point. Supposing this proposition falls through and the Committee of Nine only advises the continuation of the present affiliation. Provided the Committee of Nine does not take the JOURNAL over you might not have any JOURNAL after January first.

DR. BOWERS: I am informed by Dr. Streeter that there will be no necessity for any money consideration in the transfer of the JOURNAL except the payment of this $4.50 per annum per member for the time during which the JOURNAL is continued under the present management. That doesn't allow for any extension of certain kinds of illustrations, for instance, or for other developments of the JOURNAL. I am informed by Dr. Streeter that $5.00 from each member, to be available at the present time would cover all possible contingencies under the transfer which might be contemplated, and I would like to inquire if the vote has been taken.

DR. WORCESTER: No, it has not; it is open to amendment.

DR. BOWERS: I would like to make an amendment that the sum of $4.50 be changed to $5.00 and that this money be available for the Committee of Nine from this time on.

DR. WOODWARD: I would like to speak on the amendment. I would like to have it perfectly clear that there is a contract now in existence between the JOURNAL and the Society which does not expire until January 1st. Dr. Bowers wishes to amend the contract, as I understand it, and put that into the report of this Committee, while the Committee did not consider the present contract at all. They didn't consider that they had anything to do with the present contract.

THE CHAIR: May I ask Dr. Bowers if his amendment was for the period after January 1?

DR. BOWERS: No, to become operative immediately for the advantage of the present owners of the JOURNAL in their management of the JOURNAL and also to be available for the Society in the event of the Committee taking over the JOURNAL.

THE CHAIR: I think I will have to rule that amendment out of order, Dr. Bowers. The report of the Committee on Finance is only for the future calendar year, and it seems to me to amend the price that has been suggested from

$4.50 to $5.00 and at the same time to change its going into effect is beyond the limits of an amendment. It changes the whole character of the report. I feel obliged to rule that that proposition, under the by-laws, would have to be referred to the Committee on Finance for further consideration.

DR. BOWERS: Would it be in order to place an additional amount of money and appropriate that money at the present time for any specific purpose, or can no appropriation be made until after the first of January?

THE CHAIR: I am afraid that the Chair will have to rule against such an amendment. As I understand the rules, it is not within the rights of the Council to appropriate any money without the matter having been considered by the Committee on Finance. The only way to do that at this meeting would be to ask the Committee to withdraw from the meeting now and report later, and at present there is only one member of the Committee here.

DR. BOWERS: This is an emergency.

THE CHAIR: It would be presumptuous for me to rule as chairman on a matter lying between two of the past presidents of the Society.

DR. BOWERS: There is something organically wrong when a committee can control the whole. It is generally considered that a committee is always subject to the dictates of the body creating it.

THE CHAIR: My memory does not go back to the rulings of Dr. Bowers, but it lies very distinct in my memory that Dr. Woodward, during his presidency, ruled that in accordance with Chapter IV, Section 8, of the by-laws, all extraordinary appropriations must first be passed upon by the Committee on Finance. It is quite within the powers of the Council to overrule the Chair. I am still of the opinion that I am obliged to rule the amendment out.

If somebody will appeal from the decision of the Chair, we can have a vote on the matter.

If there is no appeal, the question before us is upon the adoption of the recommendation made by the Committee on Membership and Finance.

DR. C. FROTHINGHAM: I move that it be amended by providing that the cost of the JOURNAL to members be raised from $4.50 to $5.00 to take effect on and after January first.

THE CHAIR: The question is upon the adoption of the amendment that the sum of $5.00 be appropriated to take effect on and after January first for each member in good standing. Is there anything to be said upon this amendment? It is so voted.

The question now comes upon the amended report of the Committee on Membership and Finance that $5.00 be appropriated by the Society for each member in good standing for the JOURNAL during the year 1921 or for such part of that year as the JOURNAL remains outside of the ownership of the Society. Is there anything to be said upon this motion? It is so voted.

DR. J. S. STONE: I move that an extension of the authorization given to the Committee of Nine at the meeting of the Council last June be voted in order to continue the powers of that Committee until the meeting of the Council in February.

It is so voted.

The Chair nominated as delegates to the Conferences on Medical Education, and on Medical Legislation and Public Health of the American Medical Association in Chicago in March, 1921, Dr. Channing Frothingham and Dr. W. P. Bowers, respectively. So voted.

The Chair nominated as delegates to the annual meeting of the Vermont State Medical Society at Rutland, October, 1920, Dr. Conrad Bell and Dr. Charles T. Porter. So voted.

THE CHAIR: Is there any incidental business?

The Treasurer spoke of the need of overhauling the possessions of the Society now stored in the vault at the Library, last done in 1894, and it was

Voted, That a committee of three be appointed by the President with instructions and authority to examine all papers, documents and manuscripts belonging to the Society now stored in the vault of the Boston Medical Library, and deliver to the Librarian such as they consider should be filed. The committee is authorized to destroy such of the remaining documents, receipted and outlawed bills, routine reports and the like as in their unanimous opinion are not of present or probable prospective value to the Society.

The committee is directed to report its action at the next meeting of the Council.

In accordance with the above vote the President appointed as the said committee: the Secretary, Treasurer and Librarian of the Society.

REPORT OF THE DELEGATION OF THE MASSACHUSETTS MEDICAL SOCIETY TO THE HOUSE OF DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION IN APRIL, 1920.

To the President and Members of the Council of the Massachusetts Medical Society:

Your Society was represented at the New Orleans session of the American Medical Association by a full delegation of five, made up of three regular delegates, Dr. Lund, Dr. Cody and Dr. Stetson, and two alternates, Dr. Osgood

and Dr. Burnham, taking the place of Dr. J. B. Blake and Dr. L. F. Woodward, respectively.

In the report of the Secretary of the American Medical Association it is learned that the fellowship of the Association on April 1, 1920, was 47,045, an increase in eleven months of 1,633.

The report of the Auditors submitted with the Trustees' report shows a property account held by the Association of about $282,000. There are other assets including unfinished material, stock on hand, etc., of $189,000, and a reserve fund of $283,000, a total of assets of about $755,000. The liabilities are small, about $15,000. For the year 1919 the income from the JOURNAL was nearly $800,000 and the expenses about $620,000, leaving a net income to the Association from the publication of the JOURNAL of $180,000. The expenses of the Association aside from the expenses of the JOURNAL amounted to nearly $135,000, leaving a net gain to the Association from all sources of about $49,000. The Trustees call attention to the rapidly increasing expense of carrying on the JOURNAL and make the statement that the increased cost of paper and labor alone will increase the cost of production about $57,000 for the present year, and they take occasion to warn the Association of the possible necessity of increasing the subscription price of the JOURNAL.

As usual, the reports of the Council on Health and Public Instruction, under the chairmanship of Dr. Victor Vaughan, and the report of the Council on Medical Education, under the chairmanship of Dr. Arthur D. Bevan, were most complete and instructive, and should be read by every one interested in the progress of medicine. In addition, there was presented to the House of Delegates a report from a special committee appointed to consider the narcotic drug situation, under the chairmanship of Dr. Eliot Harris of New York. This report was most complete and gives most astonishing information regarding the habitual use of narcotic drugs in the United States and the very great difficulty encountered in the attempt to control their use. Unfortunately for our profession, there are not a few in its ranks who are acting in a way to aid the indiscriminate use of narcotic drugs, or to add no credit to the profession to which they claim to belong.

One of the duties of the House of Delegates was to amend and rearrange certain portions of the Constitution and By-Laws of the Association, bringing the whole up to date and making plainer certain portions which were more or less ambiguous.

Your Delegation, in closing this report, would state that they were entirely successful in securing favorable action upon your invitation to the Association to hold its annual session for 1921 in Boston, and in this it was most cheerfully seconded by all of the New England States, as well as by New York and Pennsylvania. In fact, when it became generally known that Boston and Massachusetts were issuing such an invitation, no other meeting place was seriously considered. Every member of the Association from the Atlantic to the Pacific who is making the effort to attend the 1921 meeting, expects to have a good time in Boston.

Respectfully submitted,

H. G. STETSON.

For the Delegation from the Massachusetts Medical Society to the American Medical Association.

The President made the following remarks:

As you all know, the Governor honored the Society by appointing the President of the Massachusetts Medical Society as chairman of the commission to investigate the question of maternity benefits, and you have probably all received a communication from that Commission asking for your advice.

I don't want to complain, but I think it only fair that I should tell you of my disappointment that not one-quarter of the membership of the Massachusetts Medical Society saw fit to answer that request. I cannot help believing and feeling that when the Legislature, confused with all sorts of bills upon the question which largely affects the medical profession, passes a bill authorizing a commission to study the question and report to the next session of the Legislature, and when the Governor appoints as the chairman of that commission the President of the Massachusetts Medical Society and a questionnaire is sent out to the membership of the Society, I cannot help thinking that the President of that Society had the right to expect that at least a quarter of the membership would deign to answer, and I think he might especially have expected that more than a scant third of the Council would have taken the pains to answer.

Perhaps you have noticed that both the Republican platform and the Democratic platform in Massachusetts stand committed in this matter. One of the planks is the declaration that they shall favor whatever report is made by the Commission. They are in favor of legislation for maternity benefits, and perhaps you have noticed that both the candidates for President of the United States have recently and emphatically expressed themselves in favor of legislation in this direction.

Whether or not the recommendations of the Commission will be adopted, I have no means of knowing; nor do I know what those recommendations will be, although that Commission is obliged to report within five weeks from today. I do know this—that the members of that Commission have worked very hard at the problem. I know for one member of the Commission that his summer has been absolutely spoiled. The Commission has arranged and carried out an investigation by trained investi-

gators, first of the maternal mortality in the first half of this year, 1920, and has made a study of the causes of death of 10,000 children who have died under one year of age during the last year. An exhaustive study upon the subject of illegitimacy and the care of illegitimate mothers has been made, together with a study of the very troublesome midwife question. In addition, the Commission has sat week after week listening to the advocates and opponents of state action in this matter.

I have studied the reports of 1600 answers to the questionnaire. Not a single report has been sent in that has been without its influence; not a single answer to the questionnaire. Every answer has been tabulated. Suggestions made, and many have been made that are of value, have been carefully considered by the Commission.

The Commission has not yet been able to come to any conclusion whatsoever. It is a mighty big question. I shall be very glad personally of the advice of any members of the Council who have not yet answered. There is not a single bit of help from any practising physician or Fellow of the Society that would not be very welcome not only to myself, but, I am sure I can say so much, to every member of the Commission.

Another matter I want to speak about. In traveling about the state attending district meetings, I am impressed as I know my predecessors were, by the fact that the Massachusetts Medical Society is an unwieldy body, its different parts knowing very little of each other and unable to pull together in any direction for any purpose whatever. In my opinion the President of the Society cannot possibly attend more than a very few of the district medical societies' meetings. I have not been able to keep anywhere near the record made by my predecessors. I cannot seem to get over the ground; I cannot seem to get to the meetings that I would like to get to. I cannot help thinking that the influence of the Society would be very much increased if it were divided into districts; if Berkshire, Franklin and Hampshire, those districts to the west of the Connecticut, would form one section of the Society and meet together once a year, say for their fall meeting, which is the real beginning of the year, and then if the northern and southern part and the central part of the state were divided into perhaps four districts, so that instead of eighteen different district society meetings in the month of October there might be five meetings, each of which would include several districts. In this way there might be a chance of real active consideration of the problems that come before the medical profession in the fall of the year. The President of the Society could easily be at each one of these and so would have the opportunity of meeting during the month of October the whole fellowship of the Society instead of stringing along his visits through the year.

I do not suppose it is the place for the President of the Society to do more than to suggest action which seems desirable in order to make the Society more potent in the Commonwealth. My suggestion is that measures be taken to arrange for district meetings which shall be composed of groups of the present districts. Then another suggestion I want to make (but it is so out of order I want someone besides the Chair to make it), is that all members of the committees of the Council be *ex-officis* members of the Council. The chairmen are already *ex-officis* members of the Council, but I think all the members of the committees should be. These committees are the agents through which the Council is working. They ought to have the inspiration of the Council feeling, and it is not enough that merely the chairman shall be present or someone the chairman delegates. The meeting stands adjourned.

Adjourned at 1.10 P.M.

WALTER L. BURRAGE,
Secretary.

Miscellany.

RESOLUTIONS ON THE DEATH OF DR. PHILIP COOMBS KNAPP.

THE following resolutions on the death of Dr. Philip Coombs Knapp have been adopted by the Senior Staff of the Boston City Hospital:

Boston, July 6, 1920.

Philip Coombs Knapp died February 23, 1920, having been connected with the Boston City Hospital for practically all the years of his medical life. He graduated from Harvard College with the class of 1878, from the Harvard Medical School in 1882, and became a House Officer of this Hospital in May of the latter year. Scarcely had he finished his House Officer's service when he received his first appointment on the Hospital Staff and was made Assistant to the Ophthalmic Surgeons in January, 1884. From that day until his death he served the Hospital continuously. His first appointment to the Department for Diseases of the Nervous System came to him in April, 1885, and at the time of his death he was the head of this department. He also served as a member of the Administrative Board of the Hospital, from its inception in 1915 to his death.

Philip Knapp loved his books, was always surrounded by them, and was always happy with them. His memory was unusual and gave him the erudition which was his. His industry,

his learning, and his natural aptitude for his profession made him a marked man in his special line of work early in his career.

Philip Knapp was a courteous gentleman and behind his brusque manner and his nearsighted eyes was a great kindliness which he was all too little able to show to many of his acquaintances. He was a brave man. When the last years of his life came, years filled with pain and trouble, he bravely stuck to his work and never quit until actually incapacitated for further effort, a few weeks before the end.

This Hospital will miss him greatly from its staff, for his learning, industry, and natural ability made him a conspicuous figure in his profession, and these qualities, combined with his loyalty to the City Hospital and his devotion to its interests, will make his loss keenly felt.

(Signed)

PAUL THORNDIKE,
President, Senior Staff.
WILLIAM H. ROBEY, JR.,
Secretary, Senior Staff.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS, AUGUST, 1920.

General Prevalence.

A total of 3,972 cases of communicable diseases was reported for August, 1920, as compared with 6,328 for July and 3,148 for August, 1919.

Anterior Poliomyelitis. Ninety-three cases were reported for the month making a total of 125 for the year. July had 16 cases and June 5. This increase has caused apprehension of an epidemic and plans have been perfected to handle it should it come.

Anthrax. One case was reported. It has also been reported to the Department of Labor and Industry and in order not to duplicate their work and expense in investigating the case arrangement was made to have a copy of their history of the case for our use.

Diphtheria. There was a slight decrease with 428 cases reported as compared with 472 for July. The incidence for August, 1919, was 324 and for August, 1918, 337.

Measles showed a decrease from 2,110 in July to 452 for August.

Lobar Pneumonia. Only 73 cases were reported.

Scarlet Fever has fallen from 715 cases in June and 337 in July to 213 for August.

Pulmonary Tuberculosis. Five hundred and forty-two cases were reported, which is a fair monthly average.

Typhoid Fever. One hundred and seventeen cases for the month. Undue incidence in Fall River and New Bedford.

Whooping Cough remains high in incidence with 803 cases for the month.

RARE DISEASES.

Anthrax was reported from Boston, 1.

Anterior Poliomyelitis was reported from Amesbury, 1; Arlington, 1; Boston, 44; Brookline, 1; Cambridge, 3; Canton, 1; Everett, 4; Fitchburg, 2; Haverhill, 1; Hull, 1; Lawrence, 1; Lowell, 1; Lynn, 1; Malden, 2; Medford, 1; Milton, 1; Needham, 1; Pittsfield, 3; Quincy, 6; Scituate, 1; Somerville, 2; Taunton, 1; Wakefield, 2; Waltham, 2; Westboro, 1; Weymouth, 6; Winthrop. 1; Worcester, 1; total, 93.

Dog-bite requiring anti-rabic treatment was reported from Attleboro, 3; Barnstable, 1; Fall River, 1; Lowell, 1; South Hadley, 1; Taunton, 2; total, 9.

Dysentery was reported from Adams, 1; Cambridge, 1; Fairhaven, 1; Fall River, 2; Boston, 2; Medfield, 13; Montague, 1; Springfield, 1; total, 22.

Epidemic cerebrospinal meningitis was reported from Boston, 2; Chicopee, 1; Framingham, 1; Greenfield, 1; Lawrence, 1; Leominster, 1; Lowell, 1; Quincy, 2; Salem, 1; Weymouth, 1; total, 12.

Hookworm was reported from Beverly, 1.

Malaria was reported from Brockton, 2; Boston, 1; Cambridge, 2; Holyoke, 1; Northbridge, 2; Taunton, 1; total, 9.

Pellagra was reported from Lynn, 1; Swampscott, 1; Waltham, 1; Wrentham, 1; total, 4.

Septic sore throat was reported from Boston, 4; Sutton, 1; Westfield, 1; total, 6.

Tetanus was reported from Boston, 1; Holyoke, 1; Lawrence, 1; Northbridge, 1; total, 4.

Trachoma was reported from Boston, 7; Taunton, 1; total, 8.

Correspondence.

A PROLIFIC FAMILY.

Boston, Oct. 19, 1920.

Mr. Editor,—

The following interesting history, which I have every reason to believe is accurate, was given to me by Mrs. P—, recently operated on for a minor surgical trouble.

The patient herself had 14 children, 6 are now living. Her mother had 18 children, 9 boys and 9 girls. One sister had 16 children, and another 23 children. The latter was married at 13 years of age. There were three twin pregnancies. Seven sons were in the recent war, all of whom came through without wounds, save one, who lost an eye three days before the armistice was signed. The family was of Canadian origin. In these days of the usual small family it is certainly rare to find such a record.

Very truly yours,
WM. PEARCE COUES, M.D.

SOCIETY NOTICES.

NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.—The annual meeting of the Society will be held on Tuesday, November 16, 1920, at 8.15 P.M., at the Harvard Club of Boston.

Business meeting:
Report of Nominating Committee.
Election of Officers.
Election of New Members.

CANDIDATES.

Dr. H. A. Chamberlain, 74 Bay State Road, Boston. Endorsed by Dr. Crosbie. Approved by Dr. Chute.

Dr. H. H. Crabtree, 205 Beacon Street, Boston. Endorsed by Dr. Smith. Approved by Dr. Barney.

Dr. H. Groeshinsky, 54 Russell Street, New Bedford. Endorsed by Dr. Smith. Approved by Dr. Barney.

Dr. P. N. Pappas, 360 Commonwealth Avenue, Boston. Endorsed by Dr. Crosbie. Approved by Dr. Chute.

Dr. C. N. Peters, 655 Congress Street, Portland. Endorsed by Dr. Mitchell. Approved by Dr. Crosbie.

Dr. A. Riley, 857 Beacon Street, Boston. Endorsed by Dr. Crosbie. Approved by Dr. Chute.

Dr. D. E. Shea, 54 Church Street, Hartford. Endorsed by Dr. Stern. Approved by Dr. Kleiner.

Dr. W. L. Wright, 784 Beacon Street, Boston. Endorsed by Dr. Crosbie. Approved by Dr. Chute.

Program:

1. Presentation of specimens, instruments, etc., and report of cases.
2. Papers.
   A Variation of Mandell's Operation for Hypospadias. Dr. E. Granville Crabtree, Boston.
   An Analysis of Causes of Death on the Genito-urinary Service of the Massachusetts General Hospital during the Past Year.
   Dr. J. Dellinger Barney, Boston.

Members from outside of Boston are requested to let the Secretary know if they expect to be present, so that arrangements may be made for those who wish to dine together at the Harvard Club before the meeting.

RICHARD F. O'NEIL, *President.*
GEORGE GILBERT SMITH, *Secretary.*
352 Marlborough St.,
Boston, Mass.

MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY.—The annual meeting will be held at the Boston Medical Library at 5.30 P.M., on Thursday, October 28, 1920.

The Council will meet at the same place at 5.15 P.M. It includes the following officers: President, Vice-President, Treasurer, Secretary and the following Trustees: Drs. J. Bryant, D. Cheever, A. Coolidge, J. B. Blake, J. L. Bremer, A. Thorndike, H. Binney, J. W. Bartol, and E. W. Taylor.

R. M. GREEN, *Secretary.*

SUFFOLK DISTRICT MEDICAL SOCIETY.—A stated meeting will be held at the Boston Medical Library, Wednesday, October 27, 1920, at 8.15 P.M.

Business: Election of Auditing and Nominating Committee.

Paper: "*Seminal Vesiculitis, Its Local and Metastatic Manifestations,*" by Dr. John H. Cunningham.

Discussion by Drs. William H. Robey, Jr., Robert Soutter and Edmund L. Saunders.

Lantern Slides.

Refreshments after the meeting.

RICHARD H. MILLER, M.D.,
402 Marlborough Street. *Secretary.*

MEETINGS OF THE EAST BOSTON MEDICAL SOCIETY.—Friday, October 29, Dr. Edwin Place, Physician in Chief, Boston City Hospital South Department, on "Some Practical Aspects of the Acute Contagious Diseases." The Doctor has an international reputation and is a master of the subject.

Friday, November 19, Dr. W. H. Waters of the Homeopathic Hospital on an important viewpoint of "The Prognosis of Syphilis."

Friday, December 17, Dr. John T. Bottomley, Surgeon to the Carney Hospital, on "Jaundice." The Doctor has done some special work in Surgery of the Liver during the past year and will tell us of his investigations.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, 8 The Fenway, Thursday, November 4, 1920, at four o'clock.

Candidates should make personal application to the Secretary and present their medical diploma at least one week before the examination.

RICHARD H. MILLER, *Secretary.*
402 Marlborough Street, Boston.

DEATH NOTICES.

EMIL CARL FRASER RUPPEL, a Fellow of the Massachusetts Medical Society, died at his home in Lynn, from pneumonia, October 10, 1920, aged 61 years. He was a native of Germany, a graduate of Harvard Medical School in 1892. He is survived by his widow, who was Myra D. Allen, by two sons, who have served in the United States Army, and by a daughter, who was in the reconstruction hospital at Fort McPherson during the war.

DUNCAN MACDOUGALL, M.D., a Fellow of the Massachusetts Medical Society, died at his home in Haverhill, October 15, 1920, aged 54 years. He was a graduate of the Boston University School of Medicine in 1893.

DR. HARRY EDWARD SEARS of Beverly committed suicide October 20, 1920, by shooting himself through the heart in a private room in his office at 25 Broadway. His act is accounted for by his friends and associates in the medical profession on the ground that his mind had become affected by the continuance of a malady from which he had suffered for several years.